THE JOURNAL OF

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Items of Current Interest: Audio-visual news and notices from national and federal agencies appear in this section.

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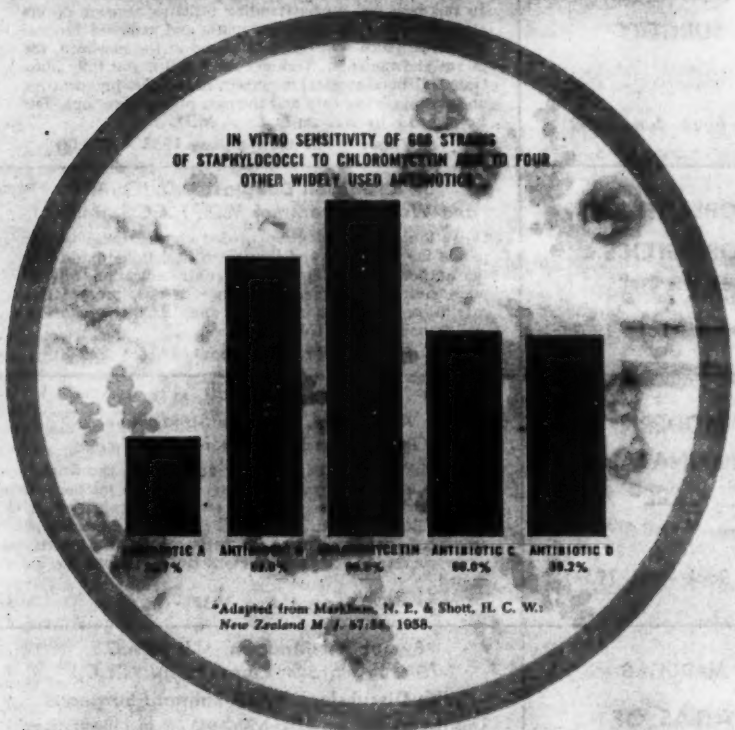

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JULY

AMERICAN SOCIETY OF FACIAL PLASTIC SURGERY, New York, July 23. Dr. Samuel M. Bloom, 123 E. 83d St., New York 28, Secretary.

AMERICAN COLLEGE OF SURGEONS, SECTIONAL MEETING, Concert Hall, Stockholm, Sweden, July 2–7. Dr. Michael L. Mason, 40 E. Erie St., Chicago 11, Chairman.

IDAHO STATE MEDICAL ASSOCIATION, Sun Valley, July 6–9. Mr. Armand L. Bird, 364 Sonna Bldg., Boise, Executive Secretary.

INTERMOUNTAIN PEDIATRIC SOCIETY, Sun Valley, Ida., July 4–6. Dr. Thales H. Smith, 220 N. University Ave., Provo, Utah, Secretary.

ROCKY MOUNTAIN CANCER CONFERENCE, Shirley-Savoy Hotel, Denver, July 9–10. Alexis E. Lubchenco, 835 Republic Bldg., Denver 2, Chairman.

INTERNATIONAL AND FOREIGN

JULY

UNITED STATES SECTION, INTERNATIONAL COLLEGE OF SURGEONS, EASTERN REGIONAL MEETING, Manchester, Vt., July 1–5. Dr. M. Leopold Brodny, 636 Beacon St., General Chairman.

AMERICAN COLLEGE OF SURGEONS, REGIONAL MEETING, Stockholm, Sweden, July 2–7. Dr. Michael L. Mason, 40 E. Erie St., Chicago, Ill., U.S.A., Chairman.

BRITISH MEDICAL ASSOCIATION, Birmingham, England, July 10–18. For information address: The Secretary, British Medical Association, Tavistock Square, London, W.C. 1, England.

BRITISH TUBERCULOSIS ASSOCIATION, Royal Festival Hall, London, England, July 1–4. For information address: Secretary-General, National Association for the Prevention of Tuberculosis, Tavistock Square, London, W.C. 1, England.

CONGRESS OF MEDICAL WOMAN'S INTERNATIONAL ASSOCIATION, Bedford College, Regents Park, London, England, July 15–21. Dr. Janet Aitken, 30 a Acacia Rd., London, N.W. 8, England, Secretary-General.

EUROPEAN SOCIETY OF CARDIOVASCULAR SURGERY, Dusseldorf, Germany, July 11–13. For information address: Congress Secretariat, Medical Akademie, Moorenstrasse, 5, Dusseldorf, Germany.

INTERNATIONAL CANCER CONGRESS, Royal Festival Hall, London, England, July 6–12. For information address: Secretary-General, 7th International Cancer Congress, 45 Lincoln's Inn Fields, London, W.C. 2, England.

INTERNATIONAL PROFESSIONAL ASSOCIATION OF GYNECOLOGISTS AND OBSTETRICIANS, Brussels, Belgium, July 18–19. Dr. Geeraert, 211, Avenue Louise, Brussels, Belgium, General Secretary.

INTERNATIONAL UNION OF BIOLOGICAL SCIENCES, London, England, July 16–23. For information address: Chairman, Division of Biology and Agriculture, National Research Council, 2101 Constitution Ave., N.W., Washington 25, D.C., U.S.A.

IRISH MEDICAL ASSOCIATION, Galway, Ireland, July. For information address: Irish Medical Association, 10 Fitzwilliam Place, Dublin, Ireland.

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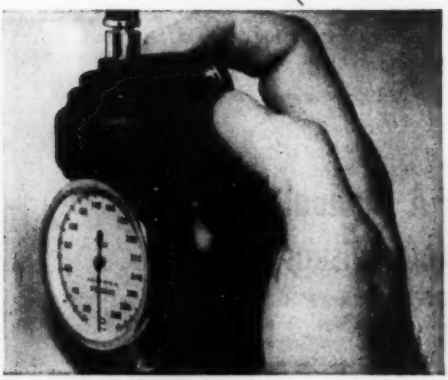

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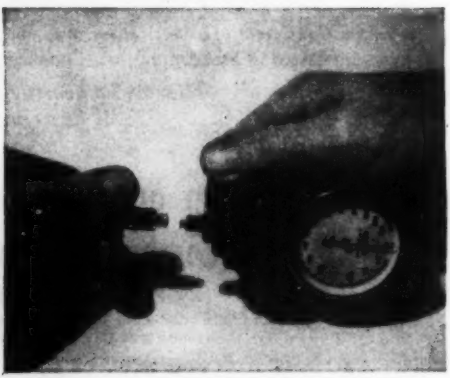

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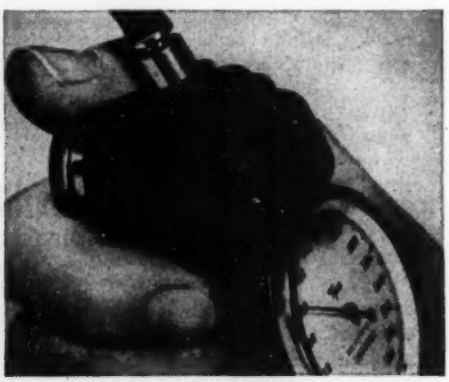

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I must make clear at the outset that this article does not pretend to be an accurate and exhaustive account of medical education in New China. In the first place, 4 weeks of travel in any country, let alone one as vast as China, is a ludicrously short time in which to form a balanced judgment. If you were to visit Britain for 4 weeks and try to assess our medical services, you would be just as likely to conclude that what you called "socialized medicine" is a roaring success, as to conclude that it is a complete failure. In the second place, there was so much that I found new and interesting that I can at best claim to have a superficial knowledge of several aspects of clinical medicine, and no detailed knowledge of any one aspect. I propose, therefore, to give a rather general account of what is being done in medicine as a whole, and not to deal exclusively with medical education. First, however, let me give you the background to our visit.

Our party consisted of nine medical men, who were invited to visit China during August, 1957, as guests of the Chinese Medical Association. The hospitality which we received throughout our visit was overwhelming. At whatever time of the day or night we arrived, we were always met at the railway station or airport by a group of doctors, mostly representing the local branch of the Medical Association. We were always accompanied by at least two interpreters, one of whom was a pediatrician who had been trained in the United States. We were taken as a group to many hospitals, research institutions, and laboratories and were also encouraged to split up into smaller groups to visit departments or institutions which were of particular interest to some of us. In the larger towns many of our Chinese colleagues spoke English. This was especially true of the research workers.

We traveled extensively and saw a good deal. Beginning with a week in Peking, we then traveled northeast into Manchuria. There we visited Shenyang (Mukden) and then, farther north, the town of Changchun. Here we saw evidence of the rapid industrialization of China, with large well-equipped factories producing machine tools and a vast automobile factory with a scheduled annual output of 30,000 trucks. From Manchuria we traveled south to Tientsin, Shanghai, Hangchow, and, finally, Canton. Our visits were not only to hospitals and laboratories but to housing estates, villages, a co-operative farm, and factories. Within, of course, our knowledge of what there was to be seen, we were always allowed to choose the places we wished to visit.

While we were certainly kept busy on these visits, it would be wrong to imagine that we were kept so busy as to have no leisure for social activities. We saw the stupendous beauty of the Summer Palace and the Forbidden City in Peking. We made an expedition to the Great Wall of China. We had a delightful 2 days on the Western Lake in Hangchow. Moreover, it is perhaps important to say that we were free, at any time, to wander the streets alone and unaccompanied. In this way, we did most of our shopping. This is quite a novel experience in China. You no doubt know how it is when you are abroad, and especially in the Far East. You are pursued by shopkeepers; you are told the great value of what you

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want to buy; fantastic prices are quoted, which you are expected to beat down. In the New China, however, no one pesters you to buy; every article is clearly marked; the shopkeeper may point out that the piece of jade you have in your hand is not really of very good quality; the prices asked are reasonable—and are the same in Peking as in Canton 1,500 miles away.

This is all part of the New China. Equally impressive, however, on the first visit, is the courtesy of Old China. When you visit a factory or a hospital, your hosts will be waiting to greet you outside on the porch. Even Madame Li Teh-chuan, the Chinese Minister of Health, greeted us in this way when we visited her in her home.

What I have written may not seem relevant to the subject of this article, but it is not possible to understand the present position with regard to medicine and medical education in China without some idea of the general social atmosphere of which they are part. Thus, the situation with regard to prices must be seen against a background of a considerable change in moral outlook. I do not wish to discuss here the extent to which this outlook is imposed from above, nor indeed am I competent to do so. However, it remains that banditry, prostitution, and begging are almost unknown and that a traveler in China, unlike in many other countries, is not in constant fear that his belongings may be stolen from his hotel room or from his compartment in a train. It is considered antisocial to throw litter in the streets, and it is a remarkable fact that the beautiful parks and gardens, thronged with workers on their free days, are as well kept as the private gardens of the "stately homes of England."

So it comes about that one cannot help but sense a spirit of social responsibility, in which people are constantly aware of their dependence upon one another, and of the effects of each individual's activities on the lives of others. To this is added a spirit of quiet confidence in the future of China, since all around is evidence of progress: new houses, new factories, new hospitals. Again, it would be absurd for me to guess at what cost this attitude has been inculcated into the people or, indeed, in what proportion of the people it has been inculcated. It would be equally absurd, however, to deny that at least a large proportion of the Chinese have a sense of social unity, a sense of jointly working toward a happier existence for themselves and for their children.

To use a phrase popular in current literary criticism, most individuals in China are "engagés." This involvement in the current social scene is achieved by a variety of means. Foremost of these is the Street Committee, which may represent some 1,000 families. Elections to this committee are from representatives appointed at the level of small groups of about twenty families. The Street Committee elects a series of groups, one of which is a Health Group. Its functions are to carry out the instructions of the local health authority with regard to sanitation, inoculation, and health propaganda. In the way it is constituted the Street Committee has access to every home. By group discussions, by radio, by cinema, and by the numerous and ubiquitous posters, every person is made aware of the schemes which are designed to improve the health of the country. It was in this way that the country has achieved the virtual elimination of flies, which has been so often commented on. It is in this way, too, that, at least in the large cities and in the large towns, the people are told how to limit their families; and it is in this sort of way that one can well imagine that diseases such as schistosomiasis may be eradicated in 12 years.

Schistosomiasis affects some 12 million people in the Yangtse Basin. Infection is carried by a tiny water snail, so that the water used to irrigate the rice fields, through innumerable canals and ditches, always carries the larvae. These readily enter the skin, and the infected person in turn passes the ova of the parasite in his stools.

We discussed this problem with Madame Li when we had been in China for only a few days. She said in a most matter-of-fact way

that she expected the incidence of the disease to be drastically reduced within 7 years and entirely eliminated in 12 years. This seemed an almost preposterous claim, and some of us felt that it was perhaps simply an example of Communist propaganda. It was only after we had learned something of the methods of health education, and particularly when we were able to see the schemes in action in a village outside Shanghai, that we realized that Madame Li may well prove right.

There are now 17,000 people officially engaged in dealing with schistosomiasis; but, in fact, the whole population in the affected area is in this battle. Treatment centers are being multiplied throughout the area. Everyone has been told about the necessity of preventing the pollution of water with human excrement. Everyone has been told how the snails are to be destroyed. The edges of the canals and ditches are being burned and sprayed. Even little children are being taught to pick up the tiny snails with their chopsticks and destroy them. We asked our interpreter to show one of the snails to a peasant woman standing outside her tiny hut. While, of course, we could not understand her reply, it was evident that she was able to deliver quite a detailed discourse on the transmission and control of schistosomiasis. Here it is very much not "they" who are coming in from outside to deal with the problem but "we" who are directly and personally concerned.

These, then, are some of the attitudes and feelings of China today. To this background we must add that China is one of the poorest countries in the world. Its population of well over 600,000,000—nearly one quarter of the world's family—has an average annual income of less than 100 U.S. dollars. For half a century and more, war from within and without has ravaged the country. For most of the Chinese people, the 8 or 9 years since "liberation" in 1949 has been the longest period of peace they have known.

Malnutrition, infection, and infestation are rife, and the medical services woefully inadequate. The authorities claim that the number of hospital beds is now six or seven times that of 1949. And there is no lack of evidence of this. The famous Rockefeller College in Peking, now the Chinese Union Medical College, has doubled the number of its beds. Most other hospitals are expanding rapidly, and many new hospitals—well constructed and well equipped—have been and are being built. Medical centers and clinics are being established in many places—in villages and factories, in city districts, and in county centers. There is already considerable evidence of the improvement in health standards. Cholera has not been seen since 1949, and smallpox since 1950. There has been a great fall in typhoid and other enteric diseases. China must be one of the few countries in the Far East where one can safely eat prepared foods, including ice cream. Infant mortality has fallen in Peking from 117 per 1,000 births in 1949 to 37 in 1956, and in Shanghai to 31.

There are now approximately 400,000 hospital beds in China. With this expansion in accommodation there is clearly a need for expansion in the number of doctors. We must remember that by far the largest number of doctors practicing at present are those trained in traditional Chinese medicine. At present there are about 360,000 of these. As against this, there are some 70,000 trained in Western medicine. This is somewhat less than in Great Britain today, though the population of China is twelve times that of Britain. Until 1949, these doctors had been trained in medical schools run chiefly by missionaries and other charitable organizations. Teaching was to a large extent in English and other European languages, and the method of training was likewise based on the British and American pattern.

These Western-trained doctors work very well with the traditional doctors. The big hospitals may have up to 5 per cent of their beds under the care of traditional doctors. There will then be two dispensaries: the dispensary of traditional medicine will have around 600 drugs, including snake skins and dried cicadas. A clinic in Shenyang has fifteen Western doctors and one traditional.

The Peking Municipal Hospital has 120 Western-trained doctors and seven traditional doctors. As would be expected, the proportion of traditional doctors rises as one leaves the large towns. The co-operative farm outside Changchun has a small clinic, run by one Western doctor and one traditional. Still farther from the towns, it is usual to find only traditional doctors.

Partly, no doubt, through national pride, traditional medicine is still officially in favor; but this must partly be because of the appalling shortage of doctors. There is one Western doctor to about 9,000 of the population, compared with one to less than 1,000 in most Western countries. The true official attitude is probably better reflected in the fact that there are now only 4 schools of traditional medicine, compared with 34 medical colleges of the Western type, some of which are very large indeed. It is true that much of the medical research being done in China is a study along modern pharmacological lines of indigenous drugs. Nevertheless, it seems that the ultimate aim is to produce Western-type doctors to replace those traditionally trained.

The number of medical students has increased three- or fourfold since 1949. The annual intake is now just under 10,000; with the continued increase in the size and number of medical schools, China should reach the Western proportion of doctors in 20 or 25 years. Peking Medical College used to have 400 students and now has over 3,000. Shanghai No. 1 Medical College had 500 doctors graduating in the 22 years of its existence before 1949; it now has 3,200 students. The new medical college in Tientsin opened in 1952; its annual intake of students is now 180 and is to go up to 540. The new medical college in Canton has 2,300 students, and the buildings soon to be constructed, for medical schools, hospitals, and research departments, are planned to cover an additional million square feet.

Thus some of the larger schools have an annual intake of 500 or more students. This is clearly an enormous strain on the teaching staff and on the laboratory accommodation. In some schools, lectures are given to 200 or 300 students; in others, classes are kept to about 100, and the same lectures are repeated by different members of staff. In general, the practical classes are smaller; in Canton they are kept to less than 30 and in Shanghai to less than 20; consequently, the work is repeated perhaps fifteen times each week with different groups of students. It is clear that the teachers have almost no time for research, and it is surprising that in one way and another many of them manage to do a little, often in groups. The present situation will ease when some of the present students are ready for recruitment as additional teachers. Here is a major difficulty, however, since, as we shall see, the standard of teaching is not high. While there may be something to be said for the production of more but lower-grade doctors, this is no solution to the problem of replacing, and increasing, the present older teachers of excellent quality.

Apart from this vast quantitative change in medical teaching, there have been two most important qualitative changes. One is that the courses which used to last 6 years were cut at first to 4 years and are still only 5 years. The Chinese are very conscious of the seriousness of this change. It was clearly taken after a great deal of discussion on the balance between more doctors of lower standard or fewer of higher standard. The discussion still continues, and there is a likelihood that in the not too distant future the courses will again become 6 years.

The other qualitative change is, to our Western eyes, more fundamental. I have already pointed out that, before "liberation," medical teaching was based chiefly on the British and American models. It has now taken over a great deal from the Russian model. For example, after a common 3-year course, students are divided into three streams, depending on whether they intend to study general medicine, or pediatrics, or public health. The first group spends the final 2 years in general hospitals. The second group spends them in children's hospitals. The third group spends 1 year in college

studying the principles of public health and the last year in factories and public health laboratories.

Students enter medical school at the age of 19. They will have had 6 years in primary school and 6 years in secondary school. They will have passed a national (oral) examination in biology, chemistry, and physics and in Chinese literature and political science. They must also pass a physical examination and must have, our informant told us, "other qualities as well." This presumably implies the passing of an interview in which personality appropriate to a Communist society is looked for. It is admitted, however, that it is not an easy matter to select students in this way, a difficulty which is not unknown in selection for medical schools in the West.

The students, of whom some 50 per cent are women, are almost all resident in dormitories in the college campus, even though some are not very far from their own homes. The accommodation is extremely cramped by our standards, since six students may share a room not more than 10 × 12 feet, fitted with a double tier of bunks. There is very little in the way of other facilities, such as common rooms and gamerooms; yet even these conditions are no doubt better than the homes from which the majority of the students come, and the students themselves seem happy enough and extremely enthusiastic.

There are no tuition fees or lodging fees, but the students are expected to pay for their food. Nevertheless, needy students will have part or all of this paid for and may even get personal grants in addition. In Canton, we were told, 70 per cent of the students are helped in one or another of these ways.

At the Peking Medical College we were given the detailed syllabus for the whole of the 5-year course in general medicine. This adds up to just about 5,000 hours of formal teaching. Of this, nearly one-half is taken up by lectures, a proportion which is at least twice as high as in British medical schools.

Whereas, before the liberation, teaching was in English or in some other European language, it is now entirely in Chinese. In addition, all students have to learn a little Latin, and either Russian or English. Until recently, the large majority of students have chosen to learn Russian. In the last 2 or 3 years, increasing proportions are choosing to learn English. To a large extent, the choice was determined by the foreign language learned at school, which in most schools was exclusively Russian until lately. However, with the recent increased use of English in the schools, it can be expected that more and more will learn English in medical college.

For 270 of the 5,000 hours of formal teaching, the student attends classes in social studies. These comprise political theory, history of the Chinese revolution, and dialectical materialism. This may be regarded by us as indoctrination or brainwashing. To the Chinese it is merely the education of the doctor to a proper appreciation of his place in society. The students often arrange for themselves an additional half-day a week throughout their course for political activities. This, however, is quite a common practice in all walks of life, and both professional and manual workers spend a great deal of their time in this way. There is, however, some sign that this is diminishing, since many of our colleagues, while not denying the usefulness of these activities, complained that they had tended to take up too much time away from their jobs.

The examinations are conducted by the teachers themselves, and the final examinations are spread over 3 weeks. Most of the examinations are oral; in Peking, 80 per cent were oral and 20 per cent written. Teachers are still debating whether there should not be a higher proportion of written examinations. Less than 10 per cent of the students fail any examination, and mostly this occurs in the early part of the course and results in the student's having to repeat a year's work. Only 5 per cent of the students are said to fail to qualify.

On qualifying, the student is allotted a

post by the authorities of the school from a list of posts supplied by the Ministry of Health. The student's own wishes are taken into account in deciding where he will go, but many seem by now to have a sufficient desire to help in the building-up of their country so as not to mind being sent to remote parts.

Specialization involves several years' resident work in appropriate departments—4 years in Peking—and further training as non-residents. Less ambitious postgraduate courses are held in many hospitals and may last for a few weeks to 6 months or longer. The bigger hospitals have quite splendid libraries. The Chinese Union Medical College takes 1,100 journals from 30 different countries, and has complete runs of many of them, some going back more than 100 years. It has, incidentally, some beautiful examples of medical books printed in the twelfth century.

Postgraduate training in research is appreciably more formal than that to which we are accustomed. Thus, at the Chinese Union Medical College, which still has the highest reputation as it did when it was the Rockefeller College, there is a 3-year course in research. In the first year, there is a general revision, both theoretical and practical, of the basic science in which the research is to be done, together with a foreign language and "philosophy," that is, history of the revolution and dialectics. In the second year the foreign language and philosophy are continued and work begun on the research project. There are weekly seminars, during which teachers and students discuss the work and review the current literature. In the third year there is an examination in foreign language and philosophy, and the research is completed and written up as a dissertation.

The research in medicine that is being carried out by the older workers, especially in such places as the Chinese Academy of Medical Sciences in Peking and the Chinese Academy of Sciences in Shanghai, is often of extremely high standard. The workers have an excellent knowledge of current research in their field. The buildings and accommodation vary greatly, and there is considerable expansion going on. There is a fair amount of first-class and up-to-date apparatus; compared with other countries in the Far East, it is all being used and not merely standing unused beneath plastic covers. Yet in medical research, too, there is evidence of Russian influence. A great deal of the physiological research involves a study of conditioned reflexes; some of the genetics, though not all, is along the lines of Michurin and Lysenko.

There is thus much to admire in the way the Chinese are endeavoring, as rapidly as possible, to improve the low health standards of their people; and there is no doubt that they are succeeding in many ways. As doctors, we can only wish them well in their efforts. Insofar as they are falling short in their aims, we can say that to some extent it is due to the almost complete lack of contact that China has had in recent years with the Western world. Insofar as this is at least partly our fault, it seems a pity that we are denying them the benefits of Western medical experience, so that they have perforce to confine their contacts to Russian medicine. If we believe that the Chinese are mistaken in adopting Russian methods of teaching and a Russian outlook toward the basic medical sciences, we must admit that we are not providing them with the alternative. Again as doctors, we cannot be content with a situation in which the West ignores the efforts being made to improve the lot of one-quarter of the world's population.

NOTE.—One of the members of our party was Dr. T. F. Fox, Editor of *The Lancet*. Those who are interested in the present position of medicine in China are strongly recommended to read his delightful and informative articles in *The Lancet*, 2:935, 995, 1053 (1957).

Government and the Medical School*

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I have read with great interest the recently issued little statement, "Functions and Structure of a Modern Medical School" (*J.A.M.A.*,) 164;58, 1957), and I believe it germane to the subject to review a bit the composition of such a school.

One becomes more and more impressed with the increasingly complex nature of the modern medical school—and especially the maze of relationships which these modern schools have within their own university setting, as well as through the community at large. In the days of the Flexner report, even the best schools were relatively simple organizations, dedicated primarily to the task of training young men to enter upon a career in medical practice. They sometimes were identified closely with a hospital. Some had modest ongoing research programs. However, almost all of them were oriented primarily to the didactic and practical teaching of their students.

What a change has been wrought in the past half-century of advance in medical education! The modern medical school not only is involved deeply as a part of a large medical center, tied closely to one or more teaching hospitals and concerned with the training of practitioners, teachers, investigators, and technologists. It is also a center which provides service to the community in a wide variety of ways, using the term "community" in the broad sense. The faculty and the advanced students furnish measurable amounts of medical care. Research activities which continue to grow at an amazing rate have a tremendous bearing on the improvement of medical care throughout the country and the world. The schools make important, continuing contributions to the activities of a whole host of voluntary agencies not only in the health field but, in many instances, in the welfare field. They provide advisory services to their communities, states, and the nation. They serve as sources of highly skilled consultative groups throughout the entire range of medical service. And they serve as an important standby resource for the national defense.

Today's medical school, then, is concerned not only with education but, very broadly, with the provision of medical service, the carrying-on of research, the provision of advisory services to public and private agencies and groups, and as a complex of foci of leadership in the whole constellation of sciences and skills related to the health and well-being of mankind.

In its concern for the health of the people of this country, the federal government has a very real interest in the institutions which train the physicians and others who provide the health services and man the classrooms and research laboratories.

Before pursuing further the subject of federal responsibility, it is hoped that these statements (which made an attempt to define what is a medical school) have brought out that state and local levels of government for a wide variety of reasons also have a considerable stake in these schools. Incidentally, although approximately half of our 83 medical schools are publicly owned, it is becoming increasingly difficult to dif-

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ferentiate clearly in the broad sense between the so-called public and private schools. All of them have, in varying degree, the common characteristics I already have mentioned. They cannot be differentiated as they once could on the sole basis of whether or not they receive tax support. I know of no medical school in the United States that does not receive some of its funds from tax sources. Conversely, most, if not all, of the medical schools that are prin.arily supported by tax moneys also have some income from private sources.

More and more state and local governments are taking an active interest in medical education, not only as it is provided in state universities, but also in the so-called private schools. In the Commonwealth of Pennsylvania, for example, the state legislature is currently giving to each of the private medical schools in the state about $2,000 per enrolled student per year regardless of the place of residence of the student.

There are also regional areas, such as New England, in which certain medical schools are receiving grants from the governments of other states to pay part of the costs of training students from those states.

The questions which arise concerning the federal dollars which have been pouring into the medical schools and their related institutions since World War II are profound ones. These dollars have come from the Department of Defense, the Veterans Administration, and the Atomic Energy Commission. Chiefly, however, as far as the medical schools are concerned, they are the dollars which have come in the form of categorical research and training grants from the Department of Health, Education, and Welfare and especially the National Institutes of Health. Extramural research grants in fiscal year 1955 amounted to $33.9 million; this fiscal year they are $97.7 million. Traineeships and fellowships in fiscal year 1955 amounted to $13.6 million. They since have been trebled, also, and this year are being supported at a level of $39.4 million.

Who knows at what level our grant programs should be supported? At what point do the available funds exceed the available worthwhile projects, the available quality manpower? Is it possible to define a balance between public and private support for medical research? Are we administering our programs to the end that the public gets the most for its money? What about block grants versus, or in addition to, categorical grants?

These and many other problems are, as you all know, being examined by a group of distinguished consultants appointed last year by Secretary Folsom to advise him on the status and future needs of medical research and medical education. As a member of this group, which is headed by Dr. Stanhope Bayne-Jones, your chairman is in a better position than I to discuss its approach to the problems it is considering. I should like to add here, incidentally, that only last week Dr. Bayne-Jones pointed out to me that medical service is so inextricably associated with medical research and medical education that that also must inevitably come under consideration by the group.

Among the obvious results of the expanding federal support programs are the vast increases in research, the initiation of some and the strengthening of other teaching programs, the construction of research laboratories, and the training of hundreds of physicians and other health personnel.

Another Public Health Service Program, the Hill-Burton program, has aided substantially in improving the country's teaching hospitals, even though such hospitals constitute the far smaller portion of those assisted in the 10 years of the program.

I have spoken of a number of obvious areas of impact. What is the subtle impact of the federal government's current preoccupation with medical research? What is it doing to the teachers? What proportion of faculty salaries is paid for by federal grants? Also—and this is a question of basic sigaificance—what is the preoccupation with research doing to clinical training? It has

been said (not too loudly) that some modern medical students are suffering from a diversion of teachers into the laboratory. In fact, are some of our modern medical schools rapidly becoming vast research institutes instead of teaching centers?

Another question relates to whether, in fact, large research and training grants on a categorical basis do not in some instances in effect slant curriculum emphasis. Certainly, there would seem little doubt that curriculum quality must be substantially affected in many different ways. I would think that the administration of the NIH grants programs represents about the minimum of federal control one could imagine. However, even though control is minimal, these programs cannot help but affect the character of the education the modern medical student is receiving.

Of considerable concern is the fact that failure to pay full indirect costs on Federal medical research grants has caused considerable financial embarrassment to many of the medical schools and universities. Secretary Folsom is committed to remedy this injustice and has continued to request Congress to authorize the payment of full indirect costs for research. A similar request to Congress last year was not approved.

Constant scrutiny of our programs from the point of view of public policy is a must.

Many of you undoubtedly have read the recently published summary of a discussion of federal programs in higher education by the trustees of the Carnegie Foundation for the Advancement of Teaching—a discussion which took place at the Foundation's fifty-first meeting in November, 1956. In discussing the matter of federal assistance to higher education, the report states that responsible advocates of federal assistance do not deny the hazards in centralized financing; they simply believe that these dangers can be kept in check by the power of public opinion. The report goes on to say that "in recent grants to medical schools it is argued that the Federal Government could not deal highhandedly over any period of time with such powerful groups and institutions as the Association of American Medical Schools, the great universities of which the schools are a part, and the professional associations involved. In other words, the educational world is not unarmed in matters of public policy."

We hope that Dr. Bayne-Jones and his associates will be able to help the thinking of all of us on these and many other problems.

This discussion was started with a definition of the complex nature of the modern medical school and its intricate concern with all phases of human welfare at local, state, and national level. In the same way, the activities of virtually all the constituent agencies of the Department of Health, Education, and Welfare have a direct or indirect bearing on medical education. I, therefore, will conclude my remarks with a few short status reports on current departmental matters which I feel to be of interest.

There are four specific items that I want to mention:

1. The status of our legislative proposal to amend the Health Research Facilities Construction Act to include authority for federal aid to build medical teaching facilities;

2. The report by the Surgeon General on experience with the Health Research Facilities Act;

3. The status of the Hill-Burton program; and

4. Our 1959 budget.

Each of these items has a significant bearing on American medical schools.

LEGISLATION TO PROVIDE FEDERAL FINANCIAL AID FOR CONSTRUCTION OF MEDICAL TEACHING FACILITIES

In 1956 Congress passed Public Law 835 authorizing a 3-year, $90-million matching grant program for construction of facilities for medical research. At the same time, Congress failed to authorize the administration's recommendations for federal grants to aid in the construction of teaching facilities.

Early in 1957, bills were introduced simu-

taneously in the House and Senate to amend the Health Research Facilities Construction Act of 1956. These bills (S. 1917, H.R. 6874, and H.R. 6875, all of the Eighty-fifth Congress) provide for an extension of the Research Facilities Construction Act for 2 additional years; an increase in the authorization to make a total of $225 million available for both teaching and research facilities; and a change in the Advisory Council to include four additional members, plus the Commissioner of Education.

No action was taken on these bills last year. Accordingly, President Eisenhower, in his 1959 Budget Message, which went to Congress in January, 1958, included the following statement: "The Congress should take action on legislation under which the Federal Government can help the medical and dental schools to build teaching, as well as research, facilities to help meet medical and dental manpower needs."

We in the Department are convinced this legislation is necessary. I am sure there is interest in Congress in this legislative proposal, but thus far it has not materialized in law.

REPORT ON HEALTH RESEARCH FACILITIES CONSTRUCTION ACT

When the Act was passed in 1956, there was a requirement that the Surgeon General, in consultation with the Research Facilities Construction Advisory Council, report on or before January 15, 1958, on activities under the Act and include "an appraisal of the current program under this title in the light of its adequacy to meet the long-term needs for funds for the construction of non-Federal facilities for research in the sciences related to health."

The Surgeon General's report, transmitted to the President, has been forwarded to Congress.

It points out that, since the Act was signed on July 30, 1956, there has been a total of 364 firm applications for funds in the amount of $147,058,684, plus 73 letters of intent indicating forthcoming applications for an additional $29,212,833, making a grand total of $176 million in requests for a total authorization of $90 million—about 2 dollars requested for each dollar authorized.

The report also points out that the Council now estimates an immediate deficiency of $61,600,920 beyond the $30 million it is anticipated Congress will appropriate for 1959 to complete the current $90 million authorization.

In addition to recommending extension of the Act, the report includes the following paragraph:

> We are convinced that if we in America are to get on with the problems of expanding health research and of improving the health of the American people, the artificial separation of education and research should be dropped and aid given for both. Hence, it is our recommendation that legislation be enacted to authorize a program for construction of facilities for the training of personnel in health related fields, as well as for construction of health research facilities. It is further recommended that the programs be administered as one, with review and advice by one Council.

This seems to us in the Department to be a very sound justification for the legislative proposal inherent in S. 1917 and H.R. 6874 and H.R. 6875.

HILL-BURTON PROGRAM

One of the most popular programs ever administered by the Public Health Service is the Hospital and Medical Facilities Survey and Construction Act—popularly known as the Hill-Burton Act.

This Act has been extended from time to time and, unless extended again, will expire on June 30, 1959. While specific recommendations for extension or alteration of the Act have not yet been made, the President's 1959 Budget Message included the following statement:

> The authorizing legislation for hospital construction grants will expire on June 30, 1959. In view of the progress already made toward meeting community hospital requirements for general beds, the Federal program should be modified to meet only the most urgent needs, with emphasis on specialized needs.

The President's budget for 1959, as amended, provides for $120 million for construction grants under the Hill-Burton program. This is at the same level as the 1958 appropriation. It includes $99 million for general hospital construction and $21 million for chronic disease hospitals, diagnostic and treatment centers, nursing and convalescent homes, and rehabilitation facilities.

THE 1959 BUDGET

In addition to the Hill-Burton item, there are a few other items in the 1959 budget that are of direct interest to the medical schools. In addition to requesting $30 million for carrying on the provisions of the Health Research Facilities Construction Act, $15 million will be requested for the first year of operation upon enactment of the medical teaching facilities bill. This would provide a total of $45 million in 1959 rather than $30 million now authorized.

Current thinking in the Department is that we would ask for a program which would spread over an additional 3 years through fiscal year 1962 with about $50 million in 1960 and 1961 and $20 million in 1962.

The budget for the National Institutes of Health calls for $211 million in 1959—or the same level as 1958. Modest increases are sought to expand the senior fellowship program in selected basic research areas. Minor adjustments as between various institutes also are provided.

Secretary Folsom, as I already have indicated, will continue to press for an increase in the payment of overhead on research grants. If this authority is granted, further adjustments within the present budget ceiling would have to be made. However, the importance to the medical schools and other parts of our universities of paying full overhead is pressing, and we are persuaded that every effort should be made to get congressional approval of this proposal.

A Consideration of Histopathology in the Teaching of Sophomore Pathology: Results of a Questionnaire

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The histopathologic slide study set has been one of the most familiar and useful tools employed to teach sophomore pathology. As such, it is under constant surveillance as to necessary improvements in keeping with changing medical education and medical practice. As a part of such surveillance, a questionnaire concerning the contemporary nature and use of such slide sets was prepared by us and forwarded to the chairmen of departments of pathology of all medical schools in the United States and Canada. Replies were received from 56 schools, representing an adequate sample of current pathology teaching practice. The replies from two schools were incomplete, presumably due to a recent reorganization of their pathology departments. A third school did not answer the questionnaire directly but sent a copy of a very comprehensive laboratory manual which could be utilized in part to answer the questionnaire. The replies from the remaining 53 schools were recorded and tabulated. The replies were generally clear, simple, and brief. For this co-operation we express our appreciation. The generous response and thoughtful answers which we received constituted a most gratifying experience.

TABLE 1

TOTAL NUMBER OF HISTOPATHOLOGIC SLIDES ISSUED OR LOANED TO THE STUDENT FOR HIS INDEPENDENT STUDY WITH THE MICROSCOPE

(Grouped in Intervals of 100 Slides)

No. slides	No. schools	Per cent of schools
500+	2	3.7
400–499	17	31.5
300–399	21	38.9
200–299	11	20.4
0–199	3	5.5
TOTAL:	54	100.0

The total number of slides issued or loaned to the student for his independent study with the microscope varied from 150 slides in one school to 735 slides in another. The mode, representing 38.9 per cent of the reporting schools, was the 300–399-slide group (Table 1). The arithmetic mean was 342 slides. A relatively large per cent of schools, viz. 31.5 per cent, used 400–499 slides; and a slightly smaller per cent, viz., 20.4 per cent, used 200–299 slides. Some departments of pathology used many different slides of the same pathologic process to illustrate the various stages of pathogenesis. This increased the total number of slides studied significantly. In contrast, some other schools limited the study slides to single illustrations of the common, important (classical) lesions.

The percentage of slides accompanied by pertinent clinical data is reported in Table 2. The reporting school group can be divided roughly into thirds: those that gave no data (36.7 per cent of the reporting schools); those that gave some data with 1–60 per cent of slides (26.6 per cent of the reporting

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schools); and those who gave data with from 80 to 100 per cent of the slides (36.7 per cent of the reporting schools). That the value for the student of correlating the histopathologic data with pertinent clinical data was widely accepted was indicated by the 67 per cent of reporting medical schools who gave some clinical data. One school mentioned that clinical data not present with the old teaching set were being added to a new slide study set in preparation.

The percentage of slides issued as unknowns (no clinical data, no diagnosis), excluding examination slides, is shown in Table 3. A minority of the reporting schools (39.6 per cent) issued at least some of the slides as unknowns. Two schools of this minority issued all their slides as unknowns. According to this arrangement, the student studied the slide and made his analysis and evaluation before additional correlative clinical and anatomical data were given him. In effect, every unknown slide was a trial run for future pathological diagnoses both in examinations and medical practice. Four schools specifically stated that they did not intend the student to become proficient in pathologic diagnosis and were more concerned in teaching concepts useful in general medical practice. A majority of reporting schools (60.4 per cent) used no unknown slides, aside from the examinations.

TABLE 2

PER CENT OF HISTOPATHOLOGIC SLIDES ACCOMPANIED BY PERTINENT CLINICAL DATA

(Arranged in Groups of 20 Per Cent)

Per cent of slides		No. schools	Per cent of 49 schools reporting satisfactorily
"High per cent"	81–100	15	30.6
"Medium per cent"	61–80	3	6.1
	41–60	4	8.2
	21–40	3	6.1
Medium per cent subtotal		(10)	(20.4)
"Low per cent"	1–20	6	12.2
None	0	18	36.7
TOTALS:		49	99.9

TABLE 3

PER CENT OF HISTOPATHOLOGIC SLIDES ISSUED AS UNKNOWNS EXCLUDING EXAMINATION SLIDES

(Arranged in Groups)

(No clinical data, no diagnosis)

Per cent of slides	No. schools	Per cent of 53 schools reporting
All unknowns (100)	2	3.8
Some unknowns ("few" to 50)	19	35.8
No unknowns	32	60.4
TOTAL:	53	100.0

TABLE 4

NUMBER OF SPECIAL STAINS REPRESENTED IN THE STUDENT'S HISTOPATHOLOGIC SLIDE SET

(Arranged in Groups)

No. special stains	No. schools	Per cent of schools
10 or more	3	5.9
7–9	14	27.4
4–6	20	39.2
1–3	11	21.6
0	3	5.9
TOTAL:	51	100.0

The number of special stains included in each set is recorded in Table 4. The following special stains, arranged in decreasing order of frequency, were found most often in the student sets: fat stains (69 per cent), acid-fast stains (61 per cent), periodic acid-Schiff stains (45 per cent), trichrome connective tissue stains (43 per cent), myelin sheath stains (41 per cent), elastic tissue stains (39 per cent), spirochete stains (39 per cent), iron stains (33 per cent), amyloid stains (29 per cent), and bacterial stains (28 per cent), carmine glycogen stains (26 per cent) and blood smear stains (22 per cent). The number of special stains found in individual slide sets varied from none in three reporting schools to fourteen in one school. The mode group of numbers of special stains per set was the four to six group (39.2 per cent), and the arithmetic mean was 5.2 slides. Many schools (27.4 per cent of the reporting group) used seven to nine

special stains and a slightly smaller group (21.6 per cent) used only one to three stains.

The total clock hours devoted by the student to individual study of histopathologic slides in the laboratory are shown in Table 5. The mode time group (49 per cent of 51 schools reporting) was 101–200 hours. The arithmetic mean time was 136 hours. The range was from none to 336 hours. A relatively large per cent (33) of schools used less than 101 hours. Many of these schools depend heavily on study of the slides outside of the laboratory and utilize a larger share of the laboratory period for discussion, demonstration, and conference.

TABLE 5

TOTAL NUMBER OF CLOCK HOURS DEVOTED BY THE STUDENT TO THE INDIVIDUAL MICROSCOPIC STUDY OF HISTOPATHOLOGIC SLIDES IN THE LABORATORY

(Arranged in Groups)

Total clock hours	No. schools	Per cent of schools
1–100	17	33.3
101–200	25	49.0
201–300	8	15.7
300 or more	1	2.0
TOTAL:	51	100.0

Additional time for the individual study of histopathologic slides outside of the laboratory was required in only 17.3 per cent of reporting schools but was recommended, "often done" or "optional" by an additional 36.6 per cent. Additional study of slides outside of the laboratory is practiced in 53.9 per cent of the reporting schools. The amount of additional required slide study time was stated to be 100 hours, 68 hours, and 42 hours by three schools. Six other schools stated that the additional required study time was variable—presumably depending largely upon the student's capabilities.

The number of slides used in the final practical examination varied from none (no final practical examination) in five reporting schools to 50 slides in two reporting schools (Table 6). There were two mode groups: one was one to five slides (26.9 per cent of reporting schools) and the other six to ten slides (26.9 per cent of reporting schools). The eleven to fifteen slide group (19.2 per cent of reporting schools) was also large. The arithmetic mean of the number of final practical examination slides was 11.41. The final practical examination of 73 per cent of reporting schools was found in the range of one to fifteen slides.

A majority of the reporting schools (65.4 per cent) gave no data to the student with the final practical examination slides. Of those giving data, 23.1 per cent of reporting schools gave data with nearly all examination slides, 5.9 per cent gave variable amounts of data (no data with some slides), and an additional 5.9 per cent gave very little data (anatomical site only if it cannot be determined histologically, etc.).

The most frequently mentioned educational objectives indicated by the answered questionnaires were:

1. To gain an insight or *understanding* of basic principles of pathology.
2. To *illustrate* the facts and theories of histopathology for deeper meanings.

TABLE 6

NUMBER OF SLIDES USED IN THE FINAL PRACTICAL EXAMINATION IN HISTOPATHOLOGY

(Arranged in Groups of Five)

No. slides	No. schools (52 total)	Per cent of schools
21 or more	6	11.5
16–20	3	5.8
11–15	10	19.2
6–10	14	26.9
1– 5	14	26.9
0	5	9.6
TOTAL:	52	100.0

3. To increase the student's *ability* to *observe* and *describe* accurately and independently.
4. To augment the student's *ability* to *analyze* and *interpret* observed data (recognize and identify tissues and lesions). This was a controversial objective.
5. To encourage correlation by the student of pathological information with data from other basic sciences and with clinical medicine.
6. To develop an appreciation by the stu-

dent of the practice and science of pathology.

An examination of the number of reported teaching objectives according to classification—each school was limited to five, some listed only one or two—shows a marked relative emphasis on subject matter-oriented (conceptual) objectives which numbered 116 in comparison with 39 student ability, appreciation, and interest-oriented objectives.

Of the conceptual objectives listed, those relating to correlation were somewhat more numerous than those pertaining to straight factual instruction (53 to 42). Of the correlations reported as teaching objectives, those relating pathologic anatomy to clinical medicine were more numerous than those confined in and relating subdivisions of pathology to each other (37 to 15).

That the illustrative value of histopathologic slides was well appreciated was evidenced by the large number of reported objectives (19) referring specifically to the use of microscopic slides for illustration.

Of the student-oriented objectives, those pertaining to abilities were mentioned almost twice as frequently as those concerning appreciation (23 to 12) and 4.6 times more frequently than those relating to student interest (23 to 5).

In a vast majority of the participating medical schools (96 per cent), the students do not prepare histopathologic slides. In one school 80 per cent of the class prepare 240 slides in an elective course and in another school the entire class makes fat-stained and amyloid-stained slides.

No instruction was given to sophomore medical students in histopathologic technique in 68.6 per cent of reporting schools. In the remaining 31.4 per cent of reporting schools, varying amounts of instruction ranging from "almost negligible" or a frozen section demonstration of up to 3 hours of instruction were given.

SUMMARY

An *average* school, then, as revealed by the questionnaire, issued or loaned to the student for his independent study with the microscope 342 slides. Pertinent clinical data were provided with at least some of the slides. Unknown slides (no diagnosis, no history) other than examination slides were not given to the student. Each slide set contained five specially stained slides which included: a fat stain, an acid-fast stain, a periodic acid-Schiff stain, a trichrome connective tissue stain, and a myelin sheath stain. The student spent 136 hours in the laboratory in the individual microscopic study of histopathologic slides. He also spent additional time, the amount varying with his ability, in additional study of the same slides outside of the laboratory. His final practical examination contained six slides. No data were given to the student with the examination slides. The professor's teaching objectives were to teach the concepts of pathology and to correlate them with clinical medicine. The objectives did not consider the students' interests, abilities, or attitudes. There was no effort to interest the students in a career in pathology. The student prepared no histopathologic preparations, and no instruction was given in histopathologic technique.

Beginners' Problems in Clinical Teaching on a Psychiatric In-Patient Service

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The purpose of this paper is to delineate some of the special aims, methods, and problems which exist in the teaching contact between the resident in training and the medical student on a psychiatric in-patient service.

Lively interest in psychiatric education has produced contributions pertaining to the training of psychiatrists (7), of psychiatric residents (8), and of medical residents (6, 9); psychiatric curricula for medical schools (5, 10); and suggestions for the integration of psychiatric services into the general hospital setting (1–4). There has been very little specific attention paid, however, to the teaching contact, in the psychiatric setting, between the resident (or junior house staff personnel) and the 3d- and 4th-year medical student. In most of clinical medicine and surgery this contact is a unique and invaluable learning opportunity. In clinical psychiatric teaching the fulfillment of this opportunity is sometimes impeded by special problem situations which arise for beginners in psychiatry, whether it be the resident, who is a beginner in the role of teacher, or the medical student, who is a beginner in having first-hand experience with psychiatric in-patients.

This paper is based upon observations made in the teaching of 3d- and 4th-year medical students who are having their first individual clinical contact with in-patients in a psychiatric hospital. During the 3d-year course, the student attends ten to twelve 3-hour clinical teaching exercises over a period of 3–4 weeks; during the 4th-year course, the student spends every day at the hospital for an entire month. The hospital is a public institution of 120 beds, located near the medical school, accepting largely acute cases, and functioning as a nucleus of the school's teaching and research program in psychiatry. The matters discussed here are in no sense unique in the author's limited teaching experience. It is hoped, therefore, that, by crystallizing some of these problems in advance, the beginning resident may be better equipped to execute his teaching duties with greater effectiveness for his students and more substantial satisfaction for himself.

THE RESIDENT-TEACHER

Teaching is a part of every physician's learning experience and professional maturation; the sooner the resident realizes this, the better he will be attuned to those features of the teaching situation which make it stimulating and rewarding. The resident-teacher should be ready to engage in the periodic revision and reassessment of his own concepts—a sort of mental housecleaning frequently superintended by eager and acutely critical students. He must have a clear idea what is to be taught, i.e., the specific aim of the course in which he is teaching and its relation to what is often a changing curriculum both in his own department and in related fields. Finally, he should be sufficiently involved in his work so that his own schedule contains enough of the "right kind" of time to fulfill

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his teaching needs; some formal scheduling of teaching conferences is essential, but much invaluable teaching and learning goes on in the frequent informal contacts between student and resident when these can be of an unhurried and easily available nature.

With more particular reference to the clinical teaching of psychiatry, there are some principles which would seem to have special application. First of all is the matter of realizing the extreme importance of the student's clinical psychiatric experience as being, in most instances, the last opportunity he will have for this sort of instruction. Since most students are not future psychiatrists but, rather, physicians who will be in constant contact with sick people and psychiatrically relevant interpersonal situations, there is a certain urgency about giving the students this chance to learn to observe and report psychiatric phenomena accurately, to understand these phenomena psychodynamically and psychobiologically, and to get a glimpse of how their own personalities function in the observation, understanding, and treatment processes. Awareness of this urgency can catalyze the learning process.

Second, is the matter of the approach to the clinical material. The initial emphasis with beginning students should be on the observational data and on how to obtain, describe, and report it. It is unrealistic to expect that the student can acquire working technical knowledge from a syllabus or book; to observe how, for example, his instructor goes about assessing the patient's intellectual functioning in a demonstration interview is of great help in allowing the student to start to develop adaptations of technique suited to his own personal style. The next area of emphasis may be on the dynamic understanding of the patient's illness and personality structure as revealed by the patient's history, productions in the interviews, and interaction with the doctor. Counter-transference and counter-identification difficulties require attention particularly when they interfere with the student's learning from the patient, and then chiefly as a technical aid in understanding and helping the patient. Although the counter-transference becomes an area of special emphasis in resident training in psychotherapy, it should, I believe, receive less attention (although not be ignored) in the medical student's work. Dealing with such problems must be geared to each individual student's needs and abilities, and for this reason the supervision of psychotherapy of long-term cases should be carried out by people more senior than beginning residents, whenever possible.

A third principle pertains to two pitfalls for which the resident must be alert: (*a*) competition with the student for the patient and (*b*) being put in the role of the student's therapist. Administrative necessity frequently requires that a student and resident share responsibility for a patient. This potentially ideal teaching situation is occasionally disrupted where there may be a shortage of particular sorts of patients, where the student does not have a part in the administrative decisions regarding the patient, or where the resident's need is to "out-do" his less experienced colleague. A quasi-therapeutic atmosphere may infiltrate the resident-student relationship owing to either the resident's actions or the student's choice. It seems that the troubled student often brings up, directly or obliquely, the question of his own need for treatment more easily with junior instructors than with more senior people. Such questions should always be handled by a psychiatrist outside of the teaching situation.

THE MEDICAL STUDENT

It is a very gratifying experience to watch the changes and progress which individual students make in their clinical psychiatric work over the course of 3–4 weeks time. When this progress does not occur, it is an imperious challenge to the resident-teacher to discover *why* not, and through his own ingenuity and application, to remedy the situation, if at all possible. Hardly ever is the student's poor progress due to low intellectual endowment, but most often it

is a result of (*a*) inexperience, (*b*) disinterest and lack of motivation to learn about psychiatry, or (*c*) personal psychological problems of the student.

a) *Inexperience* in one form or another is one of the factors which all students share in common at the beginning of their clinical work. Through the judicious selection of patients to give the student a spectrum of interview experiences and frequent opportunities to check his findings and discuss his work with the resident, this deficiency is easily remediable.

b) *Disinterest*, and lack of motivation to learn about psychiatry (rarely insurmountable unless a product of a more personal psychological problem) can often be counteracted by using, in small group discussions, the broad range of clinical situations afforded by an active in-patient service. I have found the following to be of special value in whetting the appetite of the apathetic student:

The manic or hypo-manic patient and the psychopath can be relied upon to evoke a vivid and strong response in students and ward personnel which may serve as a springboard for the discussion of the interpersonal dynamics, ward management, social, and forensic problems which such patients create. The not-eating patient or the patient with complicating medical or surgical illness (diabetes, cardio-vascular disease, fracture) permits the accretion of psychiatric knowledge around a core of already mastered principles of medical treatment and a comfortably familiar conceptual framework. Epileptic patients and patients with organic syndromes (deleria, dementias, and amentias) permit discussion of differential diagnosis of psychiatric disorders with emphasis on early detection of both treatable and progressive central nervous system disease as well as discussion of current psychosomatic inquiries into the body's role in psychiatric disturbances. The possibility of the home care of some types of patients through the use of environmental supervision, ataractic and anticonvulsant drugs, stimulates thinking of much value to the future internist, community mental health consultant, or family doctor.

The resident should exercise particular caution in using for teaching purposes potentially assaultive patients or those depressed patients who represent a serious suicidal risk. It is my own conviction that a patient who is known in advance to be assaultive should not be assigned to a medical student at any level. Although the danger of physical harm occurring may be very slight, the anxiety inherent in this situation is an unnecessary obstruction to the student's learning. Whenever an assault does occur, however slight, it is of extreme importance that the resident and student meet promptly and analyze the situation together to understand what features in the patient's illness and in the doctor's behavior combined to precipitate this incident. It is often necessary for the resident to neutralize a sort of counteractive "bravery" on the part of an eager student and to advise him quite explicitly of the patient's need for control as often dictating physical changes in the usual ward interviewing situation.

Similarly, the seriously suicidal patient should not be assigned for student work. While death is nearly commonplace and very often predictable on the medical and surgical services, suicide (or even an unsuccessful attempt) in the psychiatric setting becomes, by its rarity and unpredictability, an unseating catastrophe for all who have been even remotely connected with the patient's care. Prompt conference with the student who has had even a peripheral connection with a patient who has committed suicide should aim at a very active delineation of the responsibility for this event as resting with the hospital staff, a careful review of the case for those features which might have alerted the staff to the danger sooner and of alternate courses of management for the patient, and, finally, a discussion of the suicidal dangers in psychiatry as paralleling the mortality risks in other medical fields.

c) *Personal psychological difficulties* of the student occasionally interfere with the student's psychiatric learning. These difficulties may be classified into two broad types: (*a*) those immediate "situational" anxieties which pertain to being in a new clinical situation where the focus is on the emotional life of people who have lost the ability to control universal instinctual drives; (*b*) the deeper, more personal neurotic difficulties of the individual which may be set into resonance by some specific element of this new situation or by some external vicissitude in the student's life. These latter cannot and should not be the focus of the resident's attention. In regard to the former, a number of frequent instances are part of every psychiatrist's experience. Let the resident reflect, for example, on his own inner feelings when he first entered a closed ward and heard the door lock behind him. Hardly a group of new students fails to indicate this type of anxiety by some usually facetious remark about some fellow student who was left behind for hours before he could convince the nurse that he was not a patient. During the initial clinical exercises, the resident's physical presence on the ward for the purpose of being sure that the students find the right patients, that interview rooms are available, etc., is of great help in allaying much of this initial discomfort.

The presence of mental illness in a close relative is a not too uncommon cause of difficulty in coming to grips with clinical psychiatric material and may present itself as a peculiar incapacity of the student, puzzling to the resident unless he hears of the circumstance, often by accident if at all.

There is a broad spectrum of behavioral reactions in the teaching situation by which students indicate to the resident their need for special help in coming to grips with psychiatric material. The polemical, argumentative, intellectually defensive, denying student can be particularly trying both to the resident and to his own classmates. Providing such students with the library references they so eagerly seek often confounds the issue but makes the student more comfortable. It may often be an essential part of such a student's experience to allow him to try to "argue" a paranoid patient out of his delusions, provided that the resident is sufficiently in touch with the situation to catch the student at the zenith of this frustration and involvement before he drops the situation in disgust. It is difficult to remain patient with such a student, in whom it becomes apparent rather soon that the polemics are activated by less healthy motives than the critical inquisitiveness of the alert clinician. Frequently, the student's own classmates will slow him down, but this does not usually help the student's learning process.

Less obtrusive but almost as difficult to handle is the student who isolates himself with a cloak of quiet, passive resistance; such men are often able to respond with more interest in a small group setting with cogent discussion of other students' cases, than in individual teaching contact concerning their own patients.

Occasionally, a student (like a resident) becomes over-involved in his own "rescue fantasies" in regard to the patient, convinced, perhaps, that only he can cure this person who is the helpless victim of an unsympathetic or even mismanaging house doctor. To prevent this sort of situation it is wise to insist that the student's formal contact with his long-term patients terminate at the end of the month's course. Any requests to "continue to follow the patient" should be carefully scrutinized and granted only if adequate supervision is provided. Many students do wish to follow up their long-term cases, and the experience of assessing the patient and talking to the house doctor at not-too-frequent intervals after the student has left the service provides valuable learning in regard to the time dimension in psychiatric treatment, which is so difficult to impart in the 3 or 4 weeks usually available for the course.

Finally, there is the student who is all too ready to embrace and uncritically incorporate all the psychodynamic material as it is presented in the teaching sessions, failing to discriminate wheat from chaff, hypothesis from fact, fantasy from reality. Such a student tends to make free use of psychiatric jargon and pat formulations which relieve him of the need to observe, study, and understand the actual clinical situation. It is helpful to give such a student frequent challenges and encouragement to substantiate his more ethereal formulations with the specific material of his own case study.

The resident-teacher's aim in any clinical situation is to give the student an opportunity to develop his own resources for learning to observe accurately, to formulate coherently, and to communicate clearly the material of his clinical study. In psychiatry there is, in addition, the unique opportunity, not always realizable, of assisting the student in becoming sensitive to his own emotional reverberations as a means of understanding the patient's struggle to maintain a picture of reality in a frightening or dissatisfying world. If the student can be attuned to appreciate, just one time during the course, the personal exhilaration of which one is aware when the patient has achieved a single, meaningful, emotional synthesis, then he will have participated in an experience of personal growth which can be a unique asset for all of his future life's work.

SUMMARY

This paper has attempted to crystallize some of the special aims, methods, and problems which exist in the teaching contact between the resident and the medical student in a psychiatric in-patient service.

The resident is advised to bear in mind the urgency of this learning opportunity for the student; to approach clinical material initially in observational and descriptive dimensions, then in psychodynamic constructs, and lastly and sparingly in terms of counter-transference and counter-identification problems. Two pitfalls to be avoided by the resident are being in competition with the student, or becoming the student's therapist. The organization of the resident's schedule should provide time for informal contacts as well as more formal teaching sessions.

The medical student may fail to progress satisfactorily in his clinical psychiatric work due to inexperience, disinterest, or personal psychological problems, some of which may be remediable in the teaching situation and some of which may not. A few specific topics for clinical discussion, utilizing readily available case material, are offered as being of particular value in stimulating the disinterested student. Problems posed by the polemical student, the silent student, the over-involved student, and the over-compliant student are discussed.

The resident-teacher in psychiatry has the unique opportunity to assist the student in becoming aware of the use of his own personal reactions as diagnostic and therapeutic tools in helping the patient achieve emotional growth.

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Causality and the Comprehensive Approach*

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> In short, every advance in a science takes us farther away from the crude uniformities which are first observed, into greater differentiation of antecedent and consequent, and into a continually wider circle of antecedents recognised as relevant.—BERTRAND RUSSELL [2].

Comprehensive Medicine originated from the need for broadening the physician's understanding of his patients to include psychologic and sociologic characteristics as well as biologic. While notable progress is being made in many medical schools in broadening their students' viewpoints to include these three dimensions, the great majority of medicine still operates within the single biologic framework. There are a number of reasons for this resistance to change, such as the inherent difficulty anyone has in acquiring new frames of reference, the lack of knowledge among physicians of the psychological and sociologic material, and so on. Beyond this, there is the complexity of thinking about and of categorizing patients from three different points of view. In this regard it seems that Comprehensive Medicine has not been truly integrative but has been additive. It has added the biologic and psychologic and the sociologic, and thus it has increased the complexity of dealing with patients. Therefore, it would appear desirable to derive a concept that unifies the materials of these three disciplines into a single whole and thus simplifies comprehensive thinking and practice.

In attempting to work through to such an integrating concept, some considerations of causality were derived that have proved useful to us in thinking and functioning comprehensively, and it is these that are here presented. Essentially, causal factors of biological, psychological, and sociological types are related to time in this scheme. Since it appears that multiple causal factors are more readily comprehended if thought of along a linear time-scale than if conceived as acting simultaneously in a field, this approach may be valuable in promoting more general use of the comprehensive, multifactorial approach.

It is our concept that disease and dysfunction are the result of proximate and approximate causes.[1] By proximate cause is meant one which has begun very recently in time. By approximate cause is meant a causative factor that had its origins more distant in time and which may or may not still be operative at the time of illness. An example may clarify this further. In a patient with pneumonia, the bacterium, for example, the pneumococcus, is the proximate cause. An approximate cause may have been a viral respiratory infection that followed exposure to cold. This exposure may have resulted from sleeping on a park bench, which in turn was consequent to another approximate cause, alcoholism. The cause of the alcoholism—and a very approximate cause of the pneumonia—then becomes a distortion of the mother-child

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[1] The term "cause" has been through many philosophical torturings but is used herein, as Halliday (1) said, in its usual sense. For the purist, "determinant" may be substituted for "cause" if so desired.

relationship during the pneumonia patient's first few years of life.

Consideration of modern medical practice and thinking reveals that medicine's major concern has been with the most proximate cause. Certainly, the major therapeutic advances have been in diseases in which there is a readily discernible proximate cause, such as a bacterium. Moreover, research into etiology has been primarily directed toward the discovery of a proximate cause. Thus in a disease of unknown etiology, such as rheumatoid arthritis, the research has been primarily directed over the years at the discovery of a causative microscopic organism. Only when many efforts at culture of joint fluid and serologic testing against streptococci are unrevealing do efforts then proceed toward examining approximate causes, such as repressed hostility, climatologic factors, etc. In teaching, as well as in research, much attention is given to proximate causes. In hypertension, for instance, the student is taught first to rule out proximate causes such as renal disease, pheochromocytoma, and coarctation of the aorta before diagnosing the hypertension as "essential." Moreover, although certain approximate causes of "essential" hypertension appear reasonably well established (emotional factors, heredity), this type of hypertension continues to be labeled "essential" and will still continue to be so classed until a more proximate cause is discovered—if such exists.

Needless to say, this major concern of medicine with readily discernible proximate causes is not necessarily bad and certainly is often most efficient from the standpoint of therapy. However, it does lead to a slighting of interest in approximate causes, as witness the relatively little medical interest in genetics, the most approximate cause of all. Moreover, it may be this difference in causal emphasis and interest that has led in part to the relative isolation of psychiatry from the rest of medicine. Psychiatry, especially analytic psychiatry, has been greatly interested in the *causa causans* (e.g., the oedipal conflict), often a very approximate cause. For instance, if a nutritionist is asked for the cause of obesity, he will answer, "Eating too much," which is, of course, the proximate cause. However, if an analyst is asked for the cause of obesity, he will state that it is unsatisfied oral demands in the first year of life. This really is an answer to why the obese do eat too much and is an approximate cause. Evidently, then, there should be no disagreement as to which of the above statements is correct in defining the cause of obesity. Both are currently correct, but one is proximate, the other approximate.

Having considered heretofore the major concern of most of medicine with proximate causation, and that of psychiatry with very approximate causation, a word should be said of Public Health and Preventive Medicine, whose chief concern appears to lie between these two. Areas of interest of this specialty have been such approximate causes of disease as the vectors (mosquitoes, flies, lice) which transmit the proximate causes, absent or inadequate immunity to proximate causes, contamination of water and milk with proximate causes of disease, and so forth. In view of most of medicine's great interest in the most proximate causes of diseases, it is tempting to speculate whether sewage control would ever have occurred had the proximate causes of the dysenteric diseases been discovered and attacked early. If the typhoid bacillus had been known, would medicine have concerned itself with the search for therapeutic agents against the bacillus and neglected the epidemiologic considerations? Thus it may be that lack of knowledge of a proximate cause may at times be advantageous.

Practically, the ideas on causality presented above have been useful in deciding on management plans for patients. Thus in an obese patient it becomes clear that an attempt to rectify the very approximate unsatisfied oral dependency demands of early childhood would be extremely time-consuming (requiring psychoanalysis), and, for the great majority of patients, inefficient. However, it also becomes evident that dieting advice alone (i.e., attacking the most proxi-

mate cause) is often insufficient and that some therapeutic efforts directed toward approximate factors, such as current anxiety-producing reactions to situational stresses, may be necessary. Thus one can scan with the mind's eye the various proximate and approximate causes and decide which causes it is reasonable and efficient to treat.

The question arises whether terms other than "proximate" and "approximate" might not be preferable. Certainly, the adjectival terms "primary" and "secondary," as well as "direct" and "indirect," have often been applied to causality. One difficulty is that the terms "primary" and "secondary" connote importance and unimportance, respectively. This decision as to which link in the causal chain is important or unimportant requires a value-judgment that is inherently influenced by subjective considerations rather than by objective reality. In the saying, "For want of a nail the shoe was lost, for want of a shoe, the horse was lost, for want of a horse, the rider was lost, for want of a rider, the war was lost," who is to say whether the nail or the rider is primarily important or secondarily less important?

The terms "direct" and "indirect," unlike "primary" and "secondary," seem to connote importance to a lesser degree. However, any factor to be causal must act directly on the person of the patient, although its effect on the lung and the pneumonia per se in the case quoted may admittedly be indirect. From the standpoint of the philosophy of Comprehensive Medicine with its concern for the whole patient, "direct" and "indirect" would therefore appear to be inappropriate.

CONCLUSION

A way of thinking about the multiple causality of disease and dysfunction has been presented. Causes are classified as proximate or approximate, depending on their time of onset. This concept appears to be useful in understanding and managing patients in a comprehensive manner.

ACKNOWLEDGMENTS

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Protagonists of Modern Medicine and Epochs in American History

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When the New York Hospital–Cornell Medical Center was being built in New York City in 1931, Henry R. Shepley, its architect, asked me to designate four great men of medicine to adorn and dignify the entrance hall of the Cornell University Medical College. He proposed to cover four ventilators with grills that would frame the names of medical celebrities. This was a serious problem, since it involved the selection of four pre-eminent men to be placed before future generations of medical students as examples of greatness in medicine.

After contemplating the history of medicine, it was decided to select the men who had taken leading parts in founding the four medical sciences upon which modern medicine is based: anatomy, physiology, pathology, and bacteriology—Andreas Vesalius, William Harvey, Giovanni Battista Morgagni, and Louis Pasteur.

The four panels now on the walls of the Cornell University Medical College contain these words: "Vesalius, Anatomy, Sixteenth Century"; "Harvey, Physiology, Seventeenth Century"; "Morgagni, Pathology, Eighteenth Century"; "Pasteur, Bacteriology, Nineteenth Century."

Each of the men commemorated here not only lived in a different century but was born in a different country, Vesalius being a Belgian, Harvey an Englishman, Morgagni an Italian, and Pasteur a Frenchman. These panels therefore indicate not only that the development of modern medicine extended over 4 centuries but also that four different countries made the fundamental contributions on which this development is based.

Later, another fact related to these panels was recognized. The origin of each of the medical sciences commemorated by the panels coincided in time with the most important epochs in American history: anatomy with the discovery of America, physiology with the first permanent settlement, pathology with the independence won by the Revolutionary War, and bacteriology with the emancipation of the slaves during the Civil War.

These coincidences of medical and American history are worthy of consideration as a means of fixing the great events of medicine in the American mind by associating them with the most familiar events of our history. It is also interesting to compare these innovators in medicine with some of our national heroes and to consider the significance of the coincidence of events in medical and American history.

DISCOVERY

When Christopher Columbus returned to Spain from his fateful voyage of 1492 and told the story of his discovery of the New World, he changed the course of history. This was the outstanding event that awakened Europe from her long slumber and aroused her from her lethargy.

The discovery of America was the fulfillment of a dream which Columbus had nurtured since early manhood and which had led him to the determination to find a route to Asia by sailing west across the

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Atlantic Ocean. The story is well known how for 8 years he traveled about, trying to persuade the rulers of Europe to provide the ships and men for a voyage of discovery, and how eventually Queen Isabella of Spain championed his cause, enabling him to set sail from Palos on August 8, 1492, on one of the most daring, perilous, and significant voyages of all time. His discovery of the New World initiated the development of world unity, it shifted the center of civilization from the Mediterranean Sea to the Atlantic Ocean, and gave Europe opportunities for expansion both of thought and of possessions.

The spirit of the times that made Columbus sail into the unknown seas made other men turn to nature to probe her secrets. Some, like Copernicus, looked into heavens, and came to understand the "revolutions of the celestial orbs." As Preserved Smith has written, men began to learn again that, "by studying directly the facts of nature instead of relying on the wisdom of the past and on common opinion of mankind, revelation faded into mythology and tradition into poetry; the very testimony of the eyes was shown to be delusive, and the world, which had stood fast through all ages, was loosed from its moorings and sent spinning at terrific speed through space."

Other men directed their attention to the human body, the leader of them being Andreas Vesalius, who gave the first accurate description of the structure of the human body. He holds the same place in anatomy that Columbus holds in geography. Born in Brussels in 1514, only 8 years after the death of Columbus, Vesalius possessed the same sort of persistent curiosity and a burning desire to know the truth. In his early youth he had shown a strong predilection for the study of nature, especially anatomy, and it was said that no animal was safe from him, since he dissected dogs and cats, mice and rats with meticulous care at every opportunity.

After his schooling in Louvain in his native Belgium, Vesalius was sent to Paris to study medicine, where he was bitterly disappointed by the lack of opportunity to study human anatomy firsthand. He found that the famous professor, Jacques Dubois, read from the texts of Galen written over 1,000 years before, and tried to explain their meaning by demonstrating the organs of dogs. On a few occasions Vesalius was able to dissect a human body as the assistant of his professor, and then found how inaccurate was some of the teaching of anatomy.

Forced to leave Paris because of war, Vesalius traveled to Padua, then one of the leading Italian universities, where he found freedom in his studies and golden opportunities for research in anatomy. On December 5, 1537, he took his Doctor's degree, and, although only 23 years old, he was soon elected professor of anatomy and surgery at Padua. At that time the students chose their professors; his zeal, leadership, and outstanding qualities of mind had not escaped the notice of his fellow students.

With a feeling of distruct for the old classical texts from which anatomy was being taught, Vesalius undertook the task of giving an accurate description of all the parts of the human body, illustrated with skill and accuracy by the drawings of Johann Stephen Van Kalker, friend and fellow countryman. By 1542 he had completed his text, and all the plates for the illustrations had been cut. He chose Oporinus of Basle as the best printer for his book, and, with his precious manuscript on the backs of mules, he crossed the Alps into Switzerland. In the next year, 1543, his great book *De fabrica humani corporis* ("The Structure of the Human Body") was published. A book of 662 folio pages with over 300 illustrations, it stands today as the greatest of medical books.

Vesalius had reached the summit of his career at twenty-eight years of age when his book was published. His work, which disagreed with the classic texts of Galen, was considered by many as blasphemous, much as a denial of the truth of the Holy Scriptures would be judged today. He remained a year or more in Basle,

overseeing the printing of his book, and, when he returned to Padua, his life was made unhappy by quarrels with his prejudiced or envious colleagues. He soon withdrew from the university to become the physician of the Emperor Charles V, the grandson of the patrons of Columbus, Ferdinand and Isabella. He later served as the physician of Philip II until 1564. In that year Vesalius undertook a pilgrimage to the Holy Land, fell ill while on the voyage, and died alone and friendless on Zante, one of the Ionian Islands. While at the Spanish court he prepared a second edition of his book, published in 1555—even a finer example of the printer's art, which, somewhat enlarged and corrected, surpasses the original edition.

This is a brief account of the man who found the truth of human anatomy, just as Columbus, another great figure of the Renaissance, sailed into the unknown sea to ascertain what lay beyond.

SETTLEMENT

More than a century passed after the discovery of America before the first permanent English settlement was established in the Western Hemisphere in 1607, and, by the beginning of the 17th century, the Virginia Company was formed in London and in Bristol, with plans to establish American colonies on land granted to it by the British Crown. Its purpose was to send out colonists with a mandate to convert the Indians to Christianity, to locate gold mines, to discover the northwest passage to Asia, and to "produce the commodities of Europe, Asia and Africa, and supply the wants of all our decayed trades."

It was difficult to find men well qualified to carry out such a project, and the ships that crossed the Atlantic to anchor in the James River on April 26, 1607, carried a few adventurous aristocrats, seeking their fortunes, a number of artisans who could find no work at home, and men released from prison on condition that they settle in the New World. The majority of this company was poorly prepared to face the hardships, dangers, discouragement, and uncertainty that lay before it, and most of them were not eager to give the unceasing toil that such an undertaking required.

One of the company was Captain John Smith, a young man of 27 who had been born of excellent parents in Lincolnshire, England, in 1579. Rebelling against school, he had taken to the sea at the age of 16, and after 10 years of adventure and hardship he had joined the expedition of the Virginia Company and had taken a leading part in recruiting men and organizing the project. He was the man best prepared to meet the rigors of life in the New World and soon, in spite of his youth, became the president of the colony. He not only led extensive explorations up the rivers and through the Chesapeake Bay but was most successful in dealing with the Indians, thereby staving off starvation of the settlers.

The colony of Jamestown had the wise and valiant leadership of John Smith for not much longer than 2 years. He returned to England in 1609, after being badly burned in an explosion of gunpowder. Later he made other voyages of exploration and drew excellent maps of the New England coast, giving the name "Plymouth" to the spot where the Pilgrims landed in 1620. John Smith wrote a number of accounts of his adventures prior to his death in 1631, and his name has come down to us as a picturesque and heroic figure among the first English settlers of America.

In 1578, the year before John Smith was born, another noteworthy Englishman, William Harvey, discoverer of the circulation of the blood, was born on April 1 in Folkstone, Kent. John Smith and William Harvey were contemporary English schoolboys of well-to-do parents, whose beginnings must have been quite similar; but at the age of 16 they took divergent paths. Harvey, instead of running off from school to go to sea, embarked on a studious career at Cambridge University, where he graduated in 1597, to begin the study of medicine in the leading medical school of that time—the University of Padua in Italy.

Here Harvey fell under the influence of Fabricius, who then held the professorship of anatomy made famous by Vesalius. There Harvey heard Fabricius talk about the valves in the veins of the arm and saw him demonstrate these valves—which would allow the blood to flow only toward the heart. At that time the movements of the blood were mysterious, and it was generally believed that the liver caused the blood to move back and forth in the arteries and in the veins separately. The demonstration by Fabricius made an indelible impression on Harvey's mind, since it seemed clear to him that the generally accepted ideas regarding the movements of the blood could not be true. This was an impelling impression that Harvey carried back to London after receiving his degree of Doctor of Medicine at Padua in 1602.

In the year 1607, when John Smith and the colonists began their adventurous task of creating the first English settlement in America, William Harvey was made a Fellow of the College of Physicians of London, and 8 years later, when John Smith was exploring the coast of New England, Harvey was appointed lecturer in Anatomy and Surgery at the College of Physicians. This appointment gave him the opportunity to study the movements of the blood and to seek an answer to the questions that had long been on his mind.

Notes of Harvey's first lectures delivered in 1616 have been preserved, and there for the first time was expressed the concept that the blood circulates in the human body. Although it is evident that Harvey had by that time become convinced of the truth of the circulation of the blood, it was not until 1628 that his book *On the Motion of the Heart and Blood in Animals* was published. Twelve years of thought, study, and innumerable experiments on animals were given to his problem before Harvey published the small volume of 74 pages, printed in Latin in Frankfurt, Germany, in 1628. It is one of the greatest medical books of all time, a masterpiece of accurate description of every phase of the circulation except the passage of blood through the capillaries. Knowledge of the capillaries had to await the invention of the microscope, and these minute blood vessels were not described by their discoverer, Marcello Malphigi, until 1661, 4 years after Harvey's death.

Harvey foresaw the antagonism that his revolutionary teachings would engender, and he expressed his expectations in the following words: "But what remains to be said upon the quantity and the source of the blood which thus passes, is of a character so novel and unheard-of that I not only fear injury to myself from the envy of a few, but I tremble lest I have mankind at large for my enemies, so much doth wont and custom become a second nature. Doctrine once sown strikes deep its roots, and respect for antiquity influences all men. Still, the dye is cast, and my trust is in my love of truth and the candour of cultivated minds."

The discovery of the circulation of the blood is the indispensable foundation on which modern physiology is based. Harvey not only built this foundation but introduced the experimental method into biology and medicine and showed the necessity of working in quantitative terms in biological study. He has a lasting place among the outstanding founders of modern medicine, and the fact that Harvey laid the foundations of the science of life just at the time the early settlers were founding the civilization of America fixes in our minds the time in our history when this noteworthy advance in medicine took place.

INDEPENDENCE

The century following the first English settlement in America was a time of political turmoil in the New World. Not only was there a constant threat of attack by the Indians all along the advancing western frontiers, but the quarrels between the European countries spread to the American colonies. By 1713, however, the Dutch had succumbed to British power, and France had been much weakened in the New World by the English victories under the Duke of

Marlborough which led to the Treaty of Utrecht.

The half-century after 1713 when the British dominated North America was an important period of growth and development. Orderly government was established in the British colonies, and, in spite of high mortality rates, their population had risen from 360,000 to 1,600,000 by 1760. Much of the immigration to the colonies was non-English, the most important new arrivals being German and Scotch-Irish. Pushing westward to settle on open and fertile land and to start life free from the old restrictions of Europe, the people developed a spirit of independence and individualism and began to think of themselves as Americans rather than as British subjects. As Winston Churchill has recently written: "The ever-growing strength of the American Colonies, uncomprehended by the British Government, led to an inevitable schism with the Mother Country." The tension that gradually developed between the political leaders in the colonies and in the British government created the need for men of foresight and vigor to guide the newly formed groups in the colonies through a veritable wilderness of economic, political, and social problems. Among these Founding Fathers, Benjamin Franklin stands forth as pre-eminent in breadth of intellect and depth of wisdom.

While Franklin was becoming an important figure in the American Revolution, an Italian doctor, Giovanni Battista Morgagni, was carrying on studies which initiated a revolution in medicine by founding the science of pathology. These two scientific leaders of the 18th century were contemporaries. Morgagni, born in 1682, had been appointed professor of anatomy at the famous University of Padua in 1715, 8 years before young Franklin arrived in Philadelphia in 1723 to begin his career as a printer. They resembled each other in character, attainments, and in their influence on human progress.

Although the newspaper office was the center of Franklin's education, by his wit and wisdom, industry, and desire to make improvements, his influence soon spread through the colonies and eventually throughout the Western World as one of the first scientists of his time and an inventor of important advances in the ways of living. His biographer, Carl Van Doren, wrote of him: "In any age, in any place, Franklin would have been great. Mind and will, talent and art, strength and ease, wit and grace met in him as if nature had been lavish and happy when he was shaped." His contributions to the organization of the new nation that emerged from the Revolution are well known and important in the history of the United States.

Morgagni's great contribution to medicine was in his book published in 1761, *Concerning the Seats and Causes of Disease, Anatomically Studied*. He showed for the first time how changes in the structure of organs affected and interfered with their function. His studies greatly advanced both the diagnosis and the treatment of disease by demonstrating how complaints and symptoms could be accounted for as manifestations of disease.

Working in Padua, where Vesalius had done his work and where Harvey had begun his fruitful studies, Morgagni kept accurate records of the patients he or other physicians had studied and correlated them with his masterful descriptions of the organs of the bodies he carefully dissected after death. Eventually, at the age of 79, Morgagni, persuaded by his younger colleagues, published his records of over 700 cases, doing for pathology what Vesalius had done for anatomy in Padua over 200 years before.

Morgagni, like Franklin, was a man of broad culture and wide influence. Sprengel, an illustrious medical historian who lived soon after Morgagni, wrote of him: "It is hard to say whether one should admire most his care, dexterity, and quickness in dissection, his unimpeachable character, love of truth and justice in his estimation of the work of others, his extensive scholarship and rich classical style, or his downright common sense and manly speech."

The year 1761 inaugurated a revolution in medicine and laid the foundation for the study of disease by exact methods of observation and by reasoning based on accurate and detailed examination of the facts. This revolution in medicine brought about by the birth of the science of pathology coincided with the political revolution going on at the same time, which led to the independence of the American colonies. The two great leaders, Morgagni and Franklin, worked at the same time toward freedom and light, although in different countries and in different spheres of human progress.

EMANCIPATION

During the nineteenth century two men became leaders of the human race in its quest for freedom: Abraham Lincoln in America was destined to abolish human slavery from civilized society, while Louis Pasteur in France was to free man from harmful and erroneous concepts by revealing the true nature of disease.

Born in 1809, Lincoln rose to the presidency of the United States at a time when the union of the states was threatened by disruption. Confusion and antagonism created by the problems of slavery spread across the nation, and Lincoln was elected President to undertake "the most arduous and distressing responsibility that has ever fallen to an American." He had preached an antislavery doctrine that excluded malice and hatred toward slave-owners; but, as the Civil War progressed, he was convinced that he should assume an extraordinary function of the presidency—and issued a proclamation in September, 1862, that all slaves were to be free on January 1, 1863. This proclamation gave the Negro slaves legal freedom in the United States, consummated by the subsequent victory of the Union army. Lincoln's place in American history, exalted by his death from an assasin's bullet, is forever fixed.

Louis Pasteur was born in 1822 in the French town of Dôle, the son of a tanner who gave him superior educational opportunities, of which Pasteur took full advantage. At an early age he was well established as a chemist.

In 1854, when Lincoln was attracting the national attention by his political debates with Stephen Douglas, Pasteur, at the age of 32, was appointed dean of the new faculty of science in the University of Lille. Here Pasteur began his studies of fermentation and the causes of disorders of beer and wine, a problem of great economic importance in this wine-growing region.

By 1857 Pasteur had discovered that fermentation was caused by the action of minute living organisms that could be seen under the microscope and that these microorganisms were changed in form in spoiled or "diseased" wine. These studies led Pasteur on to declare in 1864 that these living organisms came from the air and that fermentation was not caused by spontaneous generation, as was the general belief at that time. This discovery of the effects of microorganisms had a profound influence on the course of biology and medicine. At the time that Lincoln was proclaiming emancipation of the slaves, Pasteur furnished the conclusive proof of his concepts and opened the way to an understanding of bacterial infection as the most important cause of disease.

The discovery that germs or bacteria played an essential part in causing fermentation immediately suggested that germs in the air could be the cause of disease. In 1865 this idea was tested by the British surgeon Joseph Lister, who then began using carbolic acid to prevent wound infection. These innovations soon brought about a revolution in surgery by which man was freed from untold suffering and often death.

In this year, 1865, in which Lincoln's life came to its tragic end, Pasteur undertook the study of pébrine, a disease of silkworms that was causing great losses in the silk industry in southern France and impoverishing that region of the country. After several years of hard and brilliant work, Pasteur acquired an understanding of the bacterial cause of the disease and how to prevent it, and he thus saved an important French industry.

Turning to the study of cholera in chickens, Pasteur, by using the knowledge gained in his previous work, learned how to prevent this disease, thus saving agriculture from great loss. This, in turn, led to another discovery of much significance. He found that bacteria can be treated so that they lose their virulence and, when then injected into animals, create an immunity to the disease that the untreated bacteria cause. This principle was found to have widespread application in preventing infectious diseases by vaccination and was the basis for his great discovery of a means of combating rabies or hydrophobia in people bitten by rabid dogs and other animals. The prevention of hydrophobia was Pasteur's most dramatic triumph and led not only to the founding of an institute for medical research in his name but to more awards and honors than have ever been bestowed on a public benefactor during his lifetime. He died in 1895.

The position of Pasteur in history may be judged by the following quotation from Krumbhaar's translation of Castiglioni's *History of Medicine:* "From all points of view, Pasteur will stand preeminently as one of the highest examples of human virtue: his exceptional qualities as an investigator and leader, his intense and delicate goodwill toward all sufferers, his deep religious feeling, his pure and burning love of country, the nobility of his generous life, all centered in his scientific work, created about him an atmosphere of boundless affection and profound veneration. . . . One can say without exaggeration that the civilized world correctly recognized in Pasteur one of the greatest and noblest pioneers of civilization." Louis Pasteur, memorialized as one of the founders of medical science, adds luster to this small group of men whose invaluable contributions to knowledge are milestones in human progress.

SUMMARY

The triumphs of medical science in the last 400 years have been made possible by the fundamental discoveries of Vesalius, Harvey, Morgagni, and Pasteur. Each of them opened a new field for the cultivation of science from which modern medicine has sprung. Concomitantly, during the last 400 years, the history of American has also unfolded—from the discovery of the New World and its settlement, to the winning of American independence and the establishment of human freedom. These events, too, have been led by pre-eminent men, who have guided civilization through its greatest expansion in human history.

While the knowledge of medicine has progressed to improve the quality of living on this earth, political growth and development have expanded the scope of civilization and what may be thought of as the quantity of living.

Therefore, when we consider the familiar epochs and episodes of American history and the outstanding leaders associated with them, we may recall the great events and the pre-eminent men who were at the same time bestowing invaluable benefits on man as the founders of modern medicine.

MEDICAL EDUCATION FORUM

Editorials

Changing Times

During the past year representatives of the Executive Council and the Editorial Board have reviewed the operation of the *Journal of Medical Education* in line with developments in the management of the A.A.M.C. The *Journal* has a monthly circulation of 5,094, of which 600 copies are distributed to overseas subscribers. From time to time supplements covering special problems or programs are published. About 50 per cent of the articles are solicited by the Editorial Board from medical educators at home and across the seas. There have been growing pains, and, as in the case of the medical curriculum, an evaluation of the program seemed appropriate.

The first decision to emerge from the appraisal was that the Editorial Office should be located at the school of the Editor-in-Chief.

The second decision, which is implemented with this issue, was to negotiate a contract with the University of Chicago Press for publishing and printing the *Journal of Medical Education*. A number of publishing houses experienced in educational and scientific works were interviewed, and several proposals were submitted. When all factors were considered, it was the decision of the Administrative Committee that the University of Chicago Press should be the publisher and printer.

The University of Chicago Press, established in 1891, publishes thirty scholarly journals, including *The Proceedings of the National Academy of Sciences*, *Cancer Research*, and other major scientific and educational periodicals. The Press through its Printing Department will print and through its subscription and mailing service will distribute *Journal of Medical Education*.

Under the new organization Mr. Thomas Coleman of the Headquarters Staff will assume the position of News Editor with the objective of keeping our readers more fully informed on the many important developments in the Association, national, and federal agencies. Mr. Coleman will work with Mrs. Mary Parrilli on the advertising program.

Our readers may have noticed several recent changes in format, and others are on the horizon. All are designed to enhance the "readability" and "decor" of the *Journal*.

It is felt that these developments will further enhance the *Journal*'s role as a scholarly publication of international prestige in medical education.

John Z. Bowers, M.D.

Letters to the Editor

Dr. S. D. Ezell's discussion of "The Role of the University in International Affairs," which appears in his letter published in the January issue of the *Journal of Medical Education*, is most relevant.

As Secretary of the Board of Medical Examiners of the State of New York, Dr. Ezell is acutely aware of the abuses of the Visitor Exchange Visa group who, particularly in the field of medicine, have used the educational exchange for the purpose of emigration. This does not refer to the "displaced" physician or to those who seek openly to emigrate on quota. In some cases one supects the motivation of the exchangee, even though such suspicion implies an element of deception; in others—particularly those who enter undergraduate medical curricula—the extended length of such a course contributes to the alienation of the candidate from return to his own country. When the candidate comes from a country with comparatively depressed economy, living standards, and scientific opportunity, or where there is an overproduction of physicians from medical schools whose standards are not so strict as those of the United States, there is an obvious attraction to prolong his presumed "visit." If he fails to return to his own country, there is defeat of the purpose of the educational exchange.

However, the fault does not always lie with the individual candidate or with the national agency involved. Often foreign graduates in medicine are sought to fill vacancies in hospital services, with little attention given to the educational program which is implied and with no feeling of responsibility to the policy and intent of the educational exchange. Some advanced foreign-exchange scholars have been encouraged by their American host university to become research or staff members on a permanent basis, while military and some state hospitals likewise have encouraged foreign graduates to use the Exchange Visitor Visa without apparent concern as to the prolongation of the "visitor" status. While the universities have no control over most of the hospitals approved for internships, they should exert an influence with regard to the policy and purpose of the educational exchange program.

I am quite in sympathy with the splendid work of the Board of Foreign Scholarships. This Board must work within the limitations of appropriations and existing laws—some of which might well be revised to facilitate this policy of exchange. However, they must rely on the integrity and reliability of educational institutions, foundations, and organizations—foreign and American—which participate in the selection and placement of the individual candidates. Too often some of the co-operating organizations do not sense their responsibility within the jurisdictional area and evade the objectives and purpose of the educational exchange program. The Board of Foreign Scholarships is a clearing-house for a large and extensive exchange service. Success of the program depends on the intelligent administration at the local level of the receiving institution.

The role of the American universities is more specific, more easily defined in the contractural aid programs for underdeveloped areas (I.C.A.). While there are many undesirable legal restraints in the contracts imposed by federal bureaus which are inexperienced in educational administration, there may be an opportunity to advance the situation from

its present pioneer status, if the universities sense their concern and responsibility, particularly if long-term programs (implied in educational aid) are continued. As for the trainees connected with such educational aid programs, Dr. Ezell need have no apprehensions—such trainees are selected jointly by the participating universities and are programed and supervised with regard to their ultimate participation in the correlated plan of aid. The countries that receive aid are not surfeited with an overproduction of health professionals, scientists, etc., and, more frequently than not, the trainees are eager to return to their own country. By the very nature of the contract, the universities are acutely aware of the type of training needed, the supervision and progress of the individual. From such trainee groups will eventually develop "the determined nucleus" of the future faculty to which Dr. Ezell refers. Even our own present standards of excellence required grandfathers!

The point I would particularly like to make is that, in a democracy such as ours, the universities should exert a conscious influence in both the servicing and the policies of educational programs in our international relations. This is a lesson which I believe could be drawn from the British "Inter-University Council for Higher Education Overseas," a group which has considerable influence in advising on developments, budget, and personnel for their overseas commonwealth interests. Such a council can suggest wise and realistic expenditures as well as give academic recognition to faculty participation in overseas obligations. No such concerted effort has been formulated as yet by American universities, although the Committee on Institutional Projects abroad is beginning to influence our situation.

Since we are admittedly competing with the foreign-aid programs of the Communist countries, it should be mentioned that such dictator states are able to meet the needs of visiting faculty as well as trainee reception with alacrity. If a French-speaking physiologist is needed at the medical school in Hanoi, he is sent with professional skills and language versatility in the French and Vietnamese language; if technicians are requested for Indonesia, they arrive with fluency in Bahasa Indonesia. While we may descry this mandatorial method and its effect on freedom of the individual, we do not ease the path or the preparation of those who elect to go from our own faculties. We have not yet fully accepted the global nature of our position and continue, thereby, to perpetuate the aura and attitude of isolationism.

FRANCIS SCOTT SMYTH, M.D.
Coordinator, Indonesian Project
University of California Medical Center

NEW BOOKS

KENNETH E. PENROD
Book Review Editor

Abstracts

Cunningham's Manual of Practical Anatomy, Vol. I: Upper and Lower Limbs. Revised by J. C. BRASH. 12th ed. New York: Oxford University Press, 1957. $6.00.

In this edition of the *Manual* the order of dissection has been altered as far as the abandonment of the "Lithotomy Position" necessitates, and the dissection of the perineum has been postponed so that it takes its natural place as a preliminary to dissection of the pelvis. The question of anatomical nomenclature requires some consideration. Both the Birmingham Revision (B.R.) and the Paris Nomenclature (P.N.) have been used. Fortunately, the differences are few, and, in this edition of the *Manual*, it has not been thought necessary to continue a full-scale Glossary. The author has made personal decisions, all subject to reconsideration in subsequent editions, considering nomenclature to be used. For this edition the text-illustrations have been reviewed in all three volumes, and, in addition to a few borrowings from Cunningham's *Textbook*, twenty-one new drawings have been substituted for old illustrations, some of which had done duty since the first edition of the *Manual*.

The Essence of Surgery. By C. STUART WELCH and SAMUEL R. POWERS, JR. 1st ed. Philadelphia: W. B. Saunders Company, 1958. 197 pp.

The purpose of this book is to present a concept of surgery which the authors hope will assist readers to a more detailed and definitive study of this division of medicine. They have arrived at the conclusion that the management of acute injury is the special problem of the surgeon. This theme is developed in this treatise to show that there are only a few different types of acute injury and, more important, that the fundamental sameness among them is evident in their basic effect on the body. It sometimes happens that the surgeon uses the scalpel, but just as often he functions significantly without operation. Non-operative surgery has assumed a large place in the new conquest of disease by the surgeon. Nevertheless, the operation is important, and they have tried to present operative surgery in a simple basic manner which disregards the present-day mode of surgical practice, divided as it is into so-called specialties. They believe that, with this approach, the "sameness" of operative surgery can be better appreciated, in whatever specialty the operation is being observed and studied. There is so much definitive surgical knowledge that it is hard to know what to present and what to exclude from undergraduate teaching in surgery. The authors believe that there is a framework for learning surgery that is universal and contains certain principles of surgery that do not change. It is their hope that this volume will be helpful in exposing them. A final chapter on anesthesia is included.

Microdiffusion Analysis and Volumetric Error. By EDWARD J. CONWAY. 4th ed. New York: Macmillan Company, 1958. 447 pp. $8.50.

A considerable revision has taken place in this book since the third edition was published in 1950. Many new methods and applications have been added in the present volume. Likewise, attention has been called to many new developments in apparatus available to the laboratory chemist and clinician. Previous editions of this book are well known to workers in the field of biochemistry and clinical laboratory medicine.

General Pathology. Edited by SIR HOWARD FLOREY. 2d ed. Philadelphia: W. B. Saunders Co., 1958. 918 pp.

A second edition of this book, which appeared first under the title "Lectures in General Pathology," has enabled the authors to revise its contents and to meet some of the helpful

criticisms that were made. The sequence of the original chapters has been altered, and chapters on thrombosis, metabolic changes following injury, atherosclerosis, and tumors have been added. It is felt that the addition of these chapters makes the book more complete, though, for the most part, it still reflects the particular interests of the authors. The present, like the former, edition is intended for the better student who has had a good grounding in physiology and biochemistry. It is hoped to arouse his interest in the functional as well as the morphological aspects of pathology at an early stage of his career.

The Neuroses and Their Treatment. Edited by EDWARD PODOLSKY. 1st ed. New York: Philosophical Library, 1958. 555 pp. $10.00.

There are almost as many definitions of neuroses as there are psychiatrists. Neuroses are essentially conditioned anxiety reactions. They persist until the conditioning has been overcome by relevant emotional retraining processes. In neuroses there is usually a diminution of energy. There is a disappearance of values and meanings, changed effects, displacement of certainty and the emergence of doubt, obsessive questioning and unreality. The neuroses form a major portion of the emotional ills of modern life. Their diagnosis, management, and treatment are of the utmost importance to every physician in active practice. It is for this reason that the present volume has come into existence. It is a collection of 37 papers by eminent authorities in the field of all phases of the subject.

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ITEMS OF CURRENT INTEREST

AAMC Director Receives Honorary Degree

Dr. WARD DARLEY, executive director of the Association of American Medical Colleges, received an honorary Doctor of Laws degree from the University of Colorado where he spoke at the annual Senior Convocation of the Medical Center June 6.

AMA

In taking the oath of office as 112th president of the American Medical Association, June 24, in San Francisco, Dr. GUNNAR GUNDERSEN called attention to the physician's obligations on the international scene. Dr. Gundersen, a surgeon from LaCrosse, Wis., stated: "As both physicians and citizens, we must see that medicine plays its full role, not only in promoting better world health, but also in helping the search for brotherhood and peace."

Dr. Gundersen has been active in state and national medical affairs throughout his practice. He now operates the Gundersen Clinic in LaCrosse, along with three of his physician brothers.

American Urological Association

The American Urological Association is offering an annual award of $1000 (first prize of $500, second prize $300 and third prize $200) for essays on the result of clinical or laboratory research in urology. Competition is limited to urologists who have been graduated not more than ten years, and to hospital interns and residents doing research work in urology.

The first prize essay will appear on the program of the forthcoming meeting to be held in Atlantic City, N.J., April 20–23, 1959. For particulars, write the Executive Secretary, William P. Didusch, 1120 N. Charles St., Baltimore, Md. Essays must be received by December 1, 1958.

Department of Health, Education, and Welfare

Surgeon-General LEROY E. BURNEY has announced the appointment of Dr. JAMES V. LOWRY as Chief of the Bureau of Medical Services with the rank of Assistant Surgeon General. Dr. Lowry, who has been Deputy Chief of the Bureau since November, 1957, succeeds Dr. JOHN W. CRONIN, who died suddenly on March 26.

Research grants and fellowships totaling $5,725,219 were awarded during the month of April by the National Institutes of Health.

Sixty-five representatives of professional and educational groups will attend a national conference on public health training to be held in Washington, D.C., July 28–30, under the sponsorship of the Public Health Service. The purpose of the program is to help alleviate the acute shortage of trained personnel in public health agencies. Under the Act, the Public Health Service awards traineeships to individuals and makes training grants to schools offering graduate courses in public health.

MEND News

"Medical Aspects of Highway Safety," a symposium sponsored by MEND was held on May 12–14, at Ann Arbor, Michigan. The program, which involved representatives of the Commission on Trauma of the Armed Forces Board of Epidemiology, the USPHS Accident Prevention Program, the Automobile Manufacturers Association, as well as 43 colleges of medicine, was held on the University of Michigan campus. A total of 102 individuals attended this meeting. The presentations included discussions of the medical implications of the problem of man and his automobile as well as actual vehicle "accidents" under controlled conditions at a manufacturer's testing ground.

Nine representatives of MEND-affiliated medical colleges attended a course in "Management of Mass Casualties" at the Walter Reed Army Institute of Research on May 12–17.

Through the office of the Surgeon General, U.S. Army, 29 spaces in one-week "Management of Mass Casualties" courses at the Army Medical Service School and the Walter Reed Army Institute of Research have been made available to representatives of MEND schools during the 1958–1959 academic year.

Muscular Dystrophy Grants

Twelve teams of scientists in as many different institutions in this country and abroad have been allocated a total of $131,667 by Muscular Dystrophy Associations of America, Inc., as grants-in-aid of research into the cause and cure of the progressive muscle-wasting disease. The grants will go to investigators in Belgium and Eire, as well as 10 U.S. universities.

World Health Assembly Elects Dr. Burney President

The World Health Assembly held its 11th meeting June 2 and elected Dr. LEROY E. BURNEY, Surgeon General, USPHS, as its president. Dr. Burney was chosen to succeed Dr. SABIN HASSAN AL WAHBI of Iraq.

Dr. CARLOS LUIS GONZALEZ of Venezuela has been appointed Assistant Director of the Pan American Sanitary Bureau, Regional Office of the World Health Organization. This marks the return of Dr. Gonzalez to the staff of the Bureau, as he had resigned in January of this year to accept designation as Minister of Health of Venezuela.

Schering Corporation

Five programs from the 13-program educational television series, "World of Medicine" were shown during the week of the AMA convention in San Francisco, June 23–27, over the San Francisco educational television Station KQED. The series, which was first shown last September over Station WTTW in Chicago and later over the entire 31-station educational TV network, features subjects on all phases of medicine. Produced under a public service grant from Schering Corporation and through the Organization for the National Support of Educational Television (ONSET), "World of Medicine" represents the first industrial grant to educational television.

Veterans Administration

Dr. HAROLD J. MADSEN, director of professional services at the VA hospital at Downey, Ill., has been appointed manager of the VA hospital at Fort Lyon, Colorado. Dr. Madsen succeeds Dr. HOWARD MORGAN, who retired March 31.

Dr. GEORGE J. WEINSTEIN, chief of the mental hygiene clinic at Veterans Administration's New York City regional office, has been transferred to Washington, D.C., as chief of VA outpatient psychiatry. He succeeds Dr. RAYMOND FELDMAN, who joined the National Institutes of Health.

The VA has cancelled all plans for reductions in employees and shutdowns of hospital beds that were expected to result from a fiscal year 1958 funds shortage before July 1. Additional money approved by Congress and the President for operation of the agency's hospitals made the reductions unnecessary.

NEWS FROM THE MEDICAL SCHOOLS

U. of Chicago

Dr. KIMBALL CHASE ATWOOD of the biology division of the Oak Ridge National Laboratory, Oak Ridge, Tenn., has been named to head the work in medical genetics at the school of medicine. Since 1951 Dr. Atwood has been senior biologist at the Oak Ridge National Laboratory. His major in-

terests are in radiation genetics and biochemical genetics of neurospora.

Dedication ceremonies for a new research laboratory of Lying-in Hospital of the University of Chicago Clinics were held June 13. The new laboratory marks a victory in the long medical battle against infant and maternal mortality and the beginning of an attack on basic aspects of reproduction as the new goal of obstetrics. The laboratory is a $1 million remodelling of the former Mothers' Aid Pavilion, founded by Dr. Joseph B. DeLee in 1951. It will henceforth be known as the "Mother's Aid Research Pavilion." Major appointments to the Lying-in staff include Dr. Atwood, Dr. GEORGE L. WIED, who has been developing the research program in cytology, and Dr. EDITH L. POTTER, pathologist.

Dr. MURRAY RABINOWITZ of the Rockefeller Institute for Medical Research, New York, has been appointed director of the central Cardiopulmonary Laboratory. Dr. Rabinowitz will assume his new position in September.

Georgetown

Dr. LAURENCE H. KYLE, professor of medicine, has been appointed chairman of the department of medicine. Dr. Kyle succeeds Dr. HUGH H. HUSSEY, who on July 1 will relinquish the post to become dean of the school of medicine.

George Washington

Dr. HERBERT L. LEY, JR., was appointed professor of bacteriology on April 1. Dr. Ley served in the U.S. Army from 1947 to 1958 and was chief of the Preventive Medicine Research Branch, Research and Development Division, Office of the Surgeon General.

The university WRC-TV international affairs program initiated a new series on "The Other Two Billion" recently. This 14-week series, spotlighting the world health movement, will feature the social, economic and political ramifications of health and conduct interviews with prominent medical personalities from within and without the school of medicine. The entire series is being kinescoped for later distribution by the Educational Television and Radio Center, Ann Arbor, Mich. The Center plans to make the filmed package available for the next three years to educational and commercial TV stations throughout the country.

Harvard

Among the promotions recently announced by Dr. GEORGE P. BERRY, dean, is that of Dr. JACOB FURTH, who has been named clinical professor of pathology. Dr. Furth is presently chief of the Furth Division of Experimental Pathology of the Children's Cancer Research Foundation, Children's Medical Center. Dr. CECIL GEORGE SHEPS, general director of the Beth Israel Hospital has been named clinical professor of preventive medicine.

Dr. CHESTER NORTH FRAZIER, head of the department of dermatology, who combined research and teaching in dermatology with the treatment of diseases of the skin, retired on June 30. With his retirement, he became Edward Wigglesworth Professor of Dermatology Emeritus. Dr. Frazier simultaneously retired as Chief of the Dermatological Service at the Massachusetts General Hospital.

Marquette

Dr. EUGENE S. TURRELL, associate professor of psychiatry at the University of Colorado School of Medicine, has been appointed medical director of the Milwaukee Sanitarium Foundation and professor of psychiatry at Marquette, effective July 1. Dr. Turrell will devote full-time services to the sanitarium and the medical school and will organize residency training programs in psychiatry in Milwaukee.

Medical Evangelists

An experimental program of assigning six freshman and sophomore medical students to summer working appointments in medical mission hospitals has been inaugurated at the school. The hospitals are located in the Utah section of Monument Valley, Central

America, and in the Caribbean. Purpose of the pilot plan is to evaluate the effect that such an experience might have on the perspective and attitudes of each student toward his future career as a physician.

Michigan

The first teaching institute of the medical school was held June 6–7 with more than 200 faculty physicians and scientists participating. In his address to the assembly, Dr. A. C. FURSTENBERG, dean, called upon his faculty to find ways of reducing the undergraduate medical curriculum. It is Dr. Furstenberg's belief that doctors can no longer expect to master all medical knowledge during their undergraduate days. He stated they must plan to study all the rest of their lives through workshops, conferences, and special courses.

Mississippi

Dr. L. C. HANES, JR., formerly a psychiatrist with the Browne McHardy Clinic, New Orleans, LA., has joined the faculty as assistant professor of psychiatry.

Missouri

DR. THORPE RAY, associate professor of medicine at Tulane University School of Medicine, has been appointed professor of medicine and chairman of the department.

DR. OWEN A. KEARNS has been appointed medical director of the Missouri State Crippled Children's Service and associate professor of preventive medicine and public health in the school of medicine. Both appointments were effective July 1.

New York University

The Post-Graduate Medical School has announced a new part-time course, "Occupational Health for Physicians," from September 18, 1958 to May 14, 1959. This course constitutes an intensive survey of the field of occupational health and is designed to meet the requirements of those physicians unable to take a full-time program. Among the topics covered are: organization and administration of an industrial medical department; preventive and constructive medicine in industry; occupational diseases; toxicology and industrial hygiene for the physicians, biostatistics, and epidemiology.

DR. ANTHONY S. BOGATKO, surgeon and associate professor of clinical surgery, has been named a 1959 recipient of the NYU Alumni Meritorious Service Medallion. The annual award is the highest bestowed upon graduates by the Alumni Federation of the university, and was presented to Dr. Bogatko for his many years of service to the university.

DR. RAYMOND S. JACKSON, associate professor of medicine at the Post-Graduate Medical School, has been appointed administrator of University Hospital of NYU-Bellevue Medical Center. He succeeds Dr. FRANKLIN P. IAMS, who will become administrator of the newly-proposed Fairfax County Hospital in Virginia.

Pennsylvania

The Graduate School of Medicine played a major role in the first World Congress of Gastroenterology, which was held May 25–31 in Washington, D.C. Forty-six alumni from all over the world, and 21 faculty members were among the nearly 500 international medical specialists in diseases of the digestive system who presented research papers and participated officially in the program of the Congress. Dr. HENRY L. BOCKUS, professor and chairman of the department of medicine, is president of the 1958 Congress. Representing the school of medicine on the program was Dr. I. S. RAVDIN, John Rhea Barton Professor of Surgery; Dr. JOSEPH STOKES, JR., professor and chairman of the department of pediatrics; and Dr. PAUL GYORGY, professor of pediatrics.

Pittsburgh

DR. JACK A. WOLFORD has been appointed associate professor of psychiatry and will join the staff of Western Psychiatric Institute and Clinic. He is presently director of the Hastings State Hospital at Ingleside, Nebr., and is also assistant professor of psy-

chiatry at the University of Nebraska School of Medicine.

Rochester

Dr. LEONARD D. FENNINGER, assistant dean and assistant professor of medicine, has been promoted to associate dean and associate professor of medicine and senior associate physician in Strong Memorial Hospital, effective July 1.

A grant of $203,200 has been made by the John A. Hartford Foundation to the Strong Memorial Hospital, University of Rochester Medical Center, for the development of a Radiation Therapy Center for treatment, research, teaching, and diagnosis. Plans for a $400,000 Radiation Center which the university will build for the Strong Memorial Hospital were also announced. The facility will be one of the most complete of its kind and will have modern radiation machines for the treatment of disease. Work on the project is expected to begin in July, with completion scheduled for early next year. The Hartford Foundation grant will provide for the purchase of equipment and payment of part of the estimated $150,000 annual operating costs of the Center for three years.

St. Louis

Dr. RENE WEGRIA, associate professor of medicine, Presbyterian Hospital and Columbia University College of Physicians and Surgeons, has been appointed professor of internal medicine and director of the department. Dr. Wegria's appointment becomes effective in late summer, at which time he will also serve as physician-in-chief of the St. Mary's Group of Hospitals.

Stanford

Dr. ROBERT H. ALWAY has been appointed dean of the school of medicine after having served as acting dean for the past year. Dr. Alway is a graduate of the University of Minnesota Medical School. He joined the Stanford medical faculty in 1949 after teaching six years at the University of Utah Medical School. In 1953 he went to the Colorado Medical School as head of the pediatrics department, and returned in 1955 to head Stanford's pediatrics department.

The Division of Ophthalmology will present a course in strabismus consisting of lectures, demonstrations, and seminars from August 27 through August 30. Enrollment will be limited. Programs and further information may be obtained from the Office of the Dean, 2398 Sacramento St., San Francisco, Calif.

A gift in the amount of $100,000 has been made by Mrs. William A. Ross in memory of her husband for the construction of the William A. Ross Memorial Laboratories in the department of medicine. Mr. Ross was president of the Columbia Steel Company at the time of his death. Although initially the laboratories will be devoted to heart research, it is hoped that research work can be devoted to other diseases as well. Dr. DAVID A. RYTAND will head the laboratories.

S.U.N.Y. Syracuse

Dr. Ross D. JACOBS has been appointed assistant professor of obstetrics and instructor in biochemistry. His major field of research is in endocrinology. Dr. Jacobs was formerly director of laboratories of the California Foundation for Medical Research in Los Angeles.

Dr. MARGARET P. MARTIN is joining the faculty of the medical school as associate professor of preventive medicine. She was formerly associate professor of biostatistics in the department of preventive medicine, Vanderbilt University School of Medicine.

Temple

Dr. JOHN ROYAL MOORE, professor and head of the department of orthopedics, was accorded honors on May 14 in Washington, D.C., when he was named president-elect of the American Orthopedic Association.

Dr. HARRY E. BACON, professor and head of the department of proctology, has been presented the highest award given by the Belgium government. He was made an officer, Order of Couronne, by His Majesty, Rio Baudoin in Brussels on May 15.

Vanderbilt

Dr. JOHN B. YOUMANS is resigning the deanship of the school of medicine to accept the appointment of Technical Director of Research in the Office of the Army Surgeon General, Washington, D.C. He will assume his new duties September 1.

In this new position, Dr. Youmans will provide technical guidance in the making and executing of a balanced research and development program in medical, dental, veterinary and allied sciences designed to meet the present and future needs of the Army. He will also serve as principal advisor to The Surgeon General of the Army and to the Chief of the Research and Development Division in The Surgeon General's Office on all scientific and technical matters concerning research and development. Dr. Youmans is a past president of the AAMC.

U. of Washington

Dr. BERNARD M. WAGNER of Philadelphia was named the first appointee to the new Robert L. King Chair of Cardiovascular Research endowed by the Washington State Heart Association. An assistant professor of pathology at the University of Pennsylvania Medical School, Dr. Wagner will assume his duties August 1. His research interests are in rheumatic fever and other inflammatory diseases of the heart. This is the first endowed chair ever established at the university and it honors Dr. Robert L. King of Seattle, a past president of the Washington State and American Heart Association.

Dr. LLOYD M. NYHUS, assistant professor of surgery, has been appointed associate editor of the *Quarterly Review of Surgery, Obstetrics and Gynecology* published by MD publications.

Dr. JOHN DECKER assumed his new duties as head of the division of rheumatology in June. During the last three years, he has served as research fellow in the laboratories of Dr. Walter Bauer at the Massachusetts General Hospital in Boston.

Wayne State

Dr. GORDON B. MYERS has been appointed head of the new university service in internal medicine at Harper Hospital in Detroit. Dr. Myers is professor of medicine and has been chairman of the department of medicine since 1936. The full-time teaching program which Dr. Myers is formulating will begin at Harper in September.

Woman's Medical College

A $2 million wing is to be constructed starting next fall at the Northeast end of the present college building. Principally designed for research, the wing will house the administrative staff, the physiological chemistry department and facilities for basic clinical research. Additions to the new wing with the expanded department of physiological chemistry will enable the college to take 20 per cent more freshman students per year. The facilities for the basic science and clinical departments will allow a greatly increased opportunity for experimental projects.

Puerto Rico

Dr. EDWARD GRZEGORZEWSKI, formerly Director of the Division of Professional Education, World Health Organization, Geneva, Switzerland, has been appointed head of the department of preventive medicine and public health. Dr. Grzegorzewski is replacing Dr. GUILLERMO ARBONA, who resigned to accept the position of Secretary of Health of the Commonwealth.

Dr. IVAN A. PELEGRINA has been appointed professor and head of the department of obstetrics and gynecology, filling the vacancy created by the death of Dr. MANUEL FERNANDEZ FUSTER.

PERSONNEL EXCHANGE

Faculty Vacancies

Two Physicians—Paris, France

The American Hospital of Paris wishes to recruit one or two American physicians for the attending staff of the hospital. The physician must have sufficient experience and authority to be appointed Assistant Chief of Medical Services and capable of substituting for the Chief of Medical Services during his absence from the hospital. Salary $10,000 per annum for services in hospital. He would also be encouraged to enter into private practice. During first few months after arrival, a small apartment in Doctors residence is available.

Hospital also wishes to recruit a young American physician prepared to enter practice as a general practitioner who would be assigned to attending staff of the hospital, and would be expected to assist in medical work of the hospital together with taking on private patients with thought of building up a private practice in Paris and adjoining territory. Hospital is prepared to provide small apartment in Doctors residence adjoining hospital and board at hospital, together with a guarantee that fees from private practice for first year would be not less than the equivalent of $10,000.

For further information, write Mr. Hugh S. Fullerton, Executive Governor, American Hospital of Paris, 63 bld. Victor Hugo, Neuilly sur Seine, France.

INSTRUCTOR IN ANATOMY: Young doctorate to teach either microscopical or gross anatomy. Must have research program. Permanent opening with advancement feasible. Send curriculum vitae in detail and references to Dr. S. I. Kornhauser, School of Medicine, University of Louisville, 101 W. Chestnut Street, Louisville 2, Ky.

CARDIOVASCULAR PHYSIOLOGIST: A new faculty position in physiology has been created at the University of South Dakota by a long-term grant from the South Dakota Heart Association. The holder is to devote at least ¾ time to basic research in the general area of cardiovascular physiology with less than ¼ time for teaching and other duties. Faculty rank is to be commensurate with training and experience. The salary range is from $8,000 to $10,000 annually. Direct inquiries to Medical Advisory Committee, Heart Association % Office of the Dean, University of South Dakota, School of Medicine, Vermillion, South Dakota.

PHYSIOLOGIST, PHARMACOLOGIST or BIOCHEMIST: (Ph.D. or M.D.) required to direct newly established Anaesthesia Research Laboratory. Some teaching assignments to undergraduate and postgraduate students. Salary depending upon experience. For full particulars write Gordon M. Wyant, F.F.A.R.C.S., Professor of Anaesthesia. University of Saskatchewan, Saskatoon, Saskatchewan, Canada.

VIRUS RESEARCH: M.D., or Ph.D. interested in infectious diseases, basic studies on mechanisms of infection and on etiology, pathogenesis and epidemiology of virus diseases of infancy and childhood. Excellent facilities. Salary and rank open on basis of candidate's qualifications. Starts July 1, 1958. Address: V-67.

BACTERIOLOGY: Associate Professor and Senior Assistant Bacteriologist, Provincial Laboratory and University Hospital (combined appointment). M.D. with experience of teaching and of medical diagnostic bacteriology. Initial salary $10,000. Apply to the Dean, Faculty of Medicine, the University, Edmonton, Alberta, Canada.

MEDICAL BACTERIOLOGIST: The University of Ottawa requires an Assistant-Professor of Bacteriology in the Faculty of Medicine. Applicant should be a graduate in medicine with postgraduate experience in bacteriology preferably in teaching or laboratory instruction. Salary open. Please state salary expected. Address inquiries to Dr. R. J. Gibbons, Professor of Bacteriology, Faculty of Medicine, University of Ottawa, Ottawa, Canada.

PHYSICIANS (2): The Survey of General Practice in Canada requires two physicians as full-time assistants, one in Nova Scotia, the other in western Canada. Duties commence summer or autumn of 1958 and run 12 to 18 months (details to be arranged). Salary $8,000–$10,000 per annum, depending on experience, plus travel expenses. These positions involve considerable responsibility and should appeal to physicians who have a broad in-

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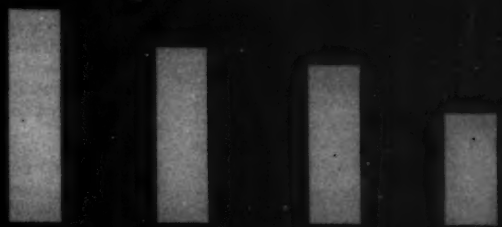

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Source—Sugar, S. J. N.: Ann. New York Acad. Sc. *71*:256 (July 10) 1957.

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terest in the problems of general practice, including the educational problems. Applicants should have had two years' postgraduate training. Training in internal medicine is a desirable background. Send application, with details of experience and names of two references on medical faculties to Director, Survey of General Practice, School of Hygiene, University of Toronto, Toronto 5, Ontario.

BIOCHEMIST: Applications are invited for the Chair of Biochemistry in the Faculty of Medicine. Minimum qualifications: M.D. with special training in Biochemistry, or Ph.D. in Biochemistry. Teaching and research experience essential. Salary in the range of $10,000, depending on qualifications and experience. Address applications or enquiries to L. G. Bell, M.D., Dean, Faculty of Medicine, The University of Manitoba, Emily & Bannatyne, Winnipeg 3, Man., Canada.

BIOCHEMIST: Teaching and research, department of biochemistry, University of Alabama. Salary and rank depend upon educational background, teaching and research activities. Reply should include personal history, complete bibliography and photo. Address: Emmett B. Carmichael, Department of Biochemistry, Alabama Medical Center, Birmingham 3, Ala.

OBSTETRICS and GYNECOLOGY: Full-time Board eligible instructor for expanding Department Obstetrics and Gynecology in large midwestern university. Ample opportunity for research, teaching and clinical experience. Address: V-68.

FELLOWSHIP IN CARDIOVASCULAR DISEASE: Active participation in cardiac catheterization, cine-angiocardiography, phonocardiography and experimental surgical laboratories. Should have completed internship. Possible later incorporation into surgical or medical residency. Apply to J. G. Mudd, M.D., St. Louis University Hospitals, 1325 S. Grand Blvd., St. Louis 4, Mo.

PEDIATRICIAN: Applications are invited for the position of full-time Associate Professor of Pediatrics at the University of Alberta, commencing September 1, 1958. The applicant should have a Ph.D. or M.D. degree or both and should be interested in undertaking and directing research in the field of biochemistry, as applied to pediatrics. Teaching duties will be related to the biochemical aspects of medicine and pediatrics. The salary offered is $7,500–$8,500 per annum with consulting privileges. Applications should include a curriculum vitae, a recent photograph, and the names of three referees and should be sent to: The Dean, Faculty of Medicine, University of Alberta, Edmonton, Alberta.

Personnel Available

INTERNIST: (Also two years of Psychiatry) Age 46, with experience in teaching and research (clinical investigation, normal and pathological physiology, experimental pharmacology and preventive medicine). Many publications, at present in group practice in Canada. Desires to return to academic position in research field. Address: A-345.

PHARMACOLOGIST: Ph.D., age 33. Six years industrial research and 2 years teaching experience. Background of research in endocrinology and drugs effecting the hematopoietic system. Prefers teaching position in a medical institution allowing adequate time for research. Available June 15, 1958. Address: A-346.

PATHOLOGIST: Foreign trained. U.S. citizen. After working in a general hospital for 7 years, desires research position. Particularly interested in pathology of chronic infectious disease. Publications, including an extensive investigation of influence of tobacco smoke on cardio-vascular system. Teaching experience but prefers a full-time research position. Address: A-347.

PEDIATRIC ALLERGIST: Age 36, Dipl. Amer. Board of Pediatrics. Currently fellow in pediatric allergy, seeking full or part-time teaching position in either Illinois or New York, as of July, 1958. Address: A-348.

MEDICAL BACTERIOLOGIST: Ph.D. Excellent background in clinical bacteriology, mycology, and public health bacteriology. Good background in parasitology and virology. Ten years teaching experience. Research published and in progress. Admin. experience in hospitals. Desires position in teaching and/or research and/or clinical microbiology. Address: A-349.

PATHOLOGIST: Age 32, board certified PA, traditionally trained and of semi-academic background, seeks full-time academic position with opportunity for combined teaching, service-type practice in university hospital. Especial interests in medical and pediatric pathology. South or southwest preferred. Address: A-350.

INTERNIST: Physician from Colombia, S.A. Professor of Internal Medicine of the Faculty of Bogota in 1953, assistant professor since 1936. Member of Academy of Medicine of Bogota. Publications: 3 books and many articles in Spanish. Fluent in English. Last five years Cultural Counselor of the Embassy of Colombia in Washington, D.C. Recent courses in Cardiology and radioisotopes at Georgetown Univ. Interested in teaching in American university. Address: A-351.

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Reference: 1. J.A.M.A. 158:386 (June 4) 1955.

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PHARMACOLOGIST-TOXICOLOGIST: Ph.D., age 35. Married, 2 children. Assistant Professor of Pharmacology and Toxicology with approximately 10 years pre-clinical teaching experience in medical school and with position of Scientist in associated medical research facility. Present research in field of inhalation materials and involves radioisotopic and telmetering technics. Desires position in non-industrial institution where fundamental research is emphasized and teaching opportunities exist. Particularly interested in autonomic physiology-pharmacology of the respiratory tract. Address: A-352.

PREVENTIVE MEDICINE: British, married with one child. Medical graduate of Edinburgh University, 1952. Served two years National Service as Captain in Royal Army Medical Corps—M.O. in charge Chest Investigation Unit at Army Hospital. Several internships in medicine, surgery and experience in general practice. Postgraduate year, for D.P.H. in Edinburgh University. Presently on staff of Usher Institute of Public Health and Social Medicine, Univ. of Edinburgh with teaching and research duties. Author and co-author of articles in medical journals. Desires appointment in American university in Public Health (Preventive Medicine). Address: A-353.

DIPLOMATE AMERICAN BOARD OF OTOLARYNGOLOGY: Age 32. Completed 4 year residency in midwestern medical center. Teaching experience at undergraduate and postgraduate levels. Numerous publications. Desires part-time or geographical full time position in medical school located in less populated area with opportunities for experimental and clinical research. References available from chairman of department and dean of medical school. Available July, 1958. Address: A-309.

INTERNIST: Age 32, Diplomate American Board of Internal Medicine, 1956. Fulltime teaching position since 1954. Experience with I-131 in thyroid disease and interested in clinical endocrinology and metabolism. Publications. Desire relocation in academic or quasi-academic situation. Will consider any challenging position. Available immediately. Address: A-310.

SENIOR SURGEON & UROLOGIST: M.D., F.I.C.S., full-time teacher and research scientist at medical school, metropolitan area; numerous publications (2 books), desires a change on associate professor level; research, teaching, medical educational programs. Will consider U.S. and abroad. Address: A-311.

ANATOMIST: Ph.D., male. At present assistant profesor of anatomy. Teaching experience in both gross and microscopic anatomy. Publications. Desires position in medical or dental school. Can arrange to be available immediately. Address: A-312.

INTERNIST: Certified, 35, family. Experienced director of medical education, teaching, administration, practice. Special training: arthritis, research psychiatry. Military Service completed. Desires challenging, responsible, full-time opportunity. Address: A-313.

PATHOLOGIST: Age 33, university trained, board eligible. Desires position in a teaching hospital. Address: A-314.

VIROLOGIST: Ph.D., 33. Six years research and teaching experience. Background in relationships of viruses to cancer cells, also in tissue culture and cytology. Prefers teaching position allowing adequate time for research. Available about June, 1958. Address: A-315.

PHYSIOLOGIST: Ph.D., 1954. Male, 39, married. Teaching and research experiences. Presently assistant professor in dental school. Desires teaching position with research opportunities in medical or dental school. Address: A-354.

PSYCHIATRIST: Age 37, certified, F.A.P.A., at present associate professor in medical school, 9 years experience in teaching and private practice, numerous consulting appointments, desires relocation. Address: A-355.

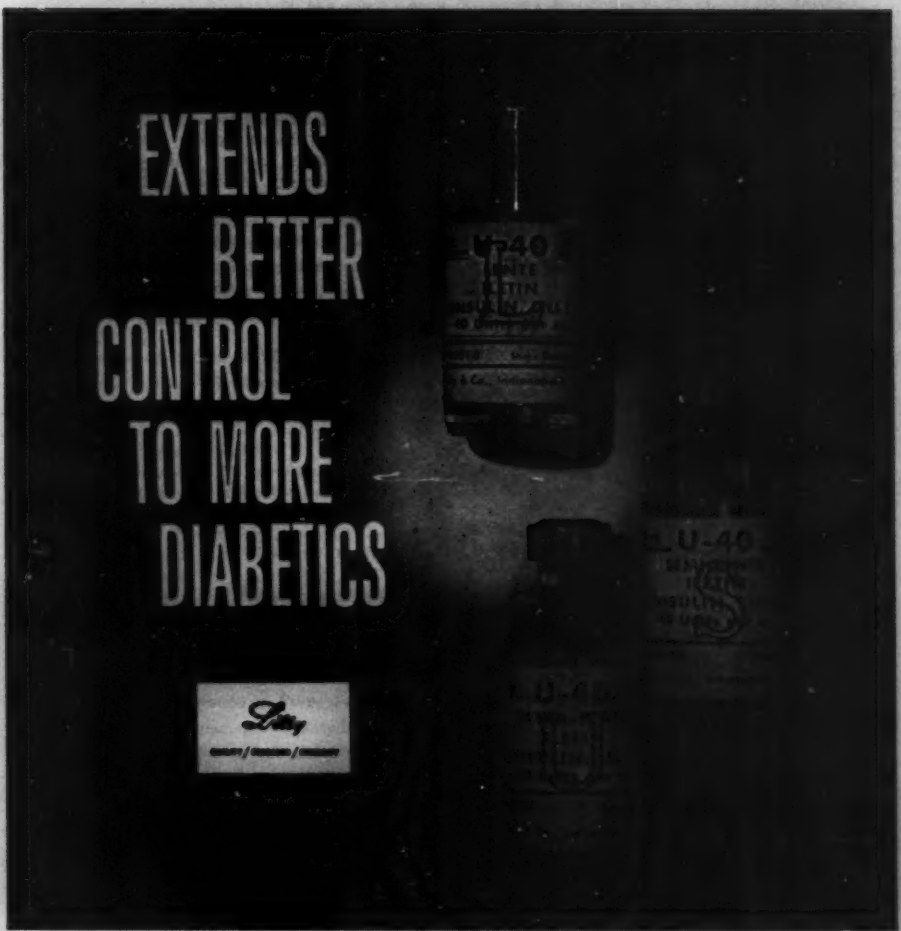
MICROBIOLOGIST: Ph.D., 32, married male, six years research and three years teaching experience. Research interest in microbial pathogenicity, enterocci and immunology. Desires teaching position allowing time for research. Address: A-356.

BIOSTATISTICIAN: From basic medical sciences department and currently on overseas lectureship award on the application of statistical methods to biological research data, seeks academic post combining teaching and research. Address: A-357.

SURGEON: Certified general, thoracic. Age 37, 12 years training teaching hospitals. Publications; interested research, teaching. Desires academic position. Address: A-358.

PHYSIOLOGIST: Ph.D., M.D., 38, presently professor of physiology in prominent Midwestern medical school. Eleven years experience in teaching medical physiology. Over 50 publications in cardiovascular physiology. Investigative interests: experimental hypertension, cardiac output, regional blood flow, transcapillary transfer rates. Experienced radioisotopes. Desires position Middle Atlantic area or Pacific Coast. Teaching position preferred; research position acceptable. Address: A-359.

BIOCHEMIST; Ph.D. 1951. Diversified research experience: physiochemistry and structure studies of proteins, kinetics and thermodynamics of enzymatic reactions, steroid and antibiotic isolation.



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Chromatography physical techniques and electronics. Publications. Desires career position in either academic or research institute. Address: A-360.

EPIDEMIOLOGIST: Age 31. M.D., Washington Univ., 1951. M.P.H. Yale 1957 (Dr. P.H. Yale 1959). Desires affiliation with department of preventive medicine and responsibilities for cardiovascular disease, epidemiological research. Available September 1958. Address: A-361.

INTERNIST-PSYCHIATRIC ORIENTATION: Certified, 36, desires to participate in practice of comprehensive medicine. Southwest location. Address: A-362.

GASTROENTEROLOGIST: Board eligible. Excellent university hospital training. Three years in G.I., clinical, teaching and research experience, and all GI procedures. Primary research interest in intestinal absorption. Present faculty appointment. Desires relocating in teaching position with definite research opportunity. Address: A-363.

MICROBIOLOGIST: Age 33, married. M.S. Bacteriology, 1949, Ph.D. Microbiology 1958. Publications. Seven years teaching experience. Presently, research fellow in Eastern university. Desire teaching position with opportunity for research. Address: A-364.

PUBLICATIONS

Useful information for both medical educators and students is published by the Association of American Medical Colleges. These publications may be obtained from the Association headquarters office, 2530 Ridge Avenue, Evanston, Ill.

Booklets

Medical Education Today ($1.50).

Admission Requirements of American Medical Colleges—1957–58 ($2.00).

Fellowships, Funds and Prizes Available for Graduate Medical Work in the U.S. and Canada—4th edition, published 1954 ($1.50).

By-Laws of the Association of American Medical Colleges (Revised 1955).

Minutes of the Proceedings of the Annual Meetings (1947–57 Minutes now available).

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The Journal of MEDICAL EDUCATION

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Journal supplements available:

The National Health Service of Great Britain ($1.00).
Education of Physicians for Industry ($2.00).
Trends in Medical Practice ($2.00).
Support of Research by American Cancer Society ($1.00).
An Analytical Study of North Carolina General Practice 1953–54 ($2.00) paperbound; $3.00, clothbound.
Survey of Women Physicians graduating from Medical School 1925–40 ($1.00).
Suggestions for Supplementing the Medical Curriculum in Time of National Emergency.
Medical Education for Foreign Scholars in the Medical Sciences ($1.50).

Teaching Institute Reports ($2.00 paperbound, $3.00 clothbound).

Report of the Conference on Preventive Medicine in Medical Schools (Report of the 1952 Institute).

The Teaching of Physiology, Biochemistry and Pharmacology (Report of the 1953 Institute).

The Teaching of Pathology, Microbiology, Immunology and Genetics (Report of the 1954 Institute).

The Teaching of Anatomy and Anthropology in Medical Education (Report of the 1955 Teaching Institute).

The Appraisal of Applicants to Medical School (Report of the 1956 Institute).

Medical Audio-Visual Institute Publications

Film Catalog, Fall 1955 and Supplements.

Reprints from the Audiovisual News Section of the Journal of MEDICAL EDUCATION.

Films in Psychiatry, Psychology and Mental Health (available from the Health Education Council, 92 Belmont Drive, Livingston, N.J.).

Films in the Cardiovascular Diseases (Part I available from the American Heart Assn.), 44 E. 23rd St., New York 10, N.Y. ($2.00).
Part II available from the Medical A-V Institute ($2.00).

Publications of Related Organizations

Hospitals Participating in the Matching Program 1958 (NIMP).

Results of the Matching Program 1958 (NIMP publication).

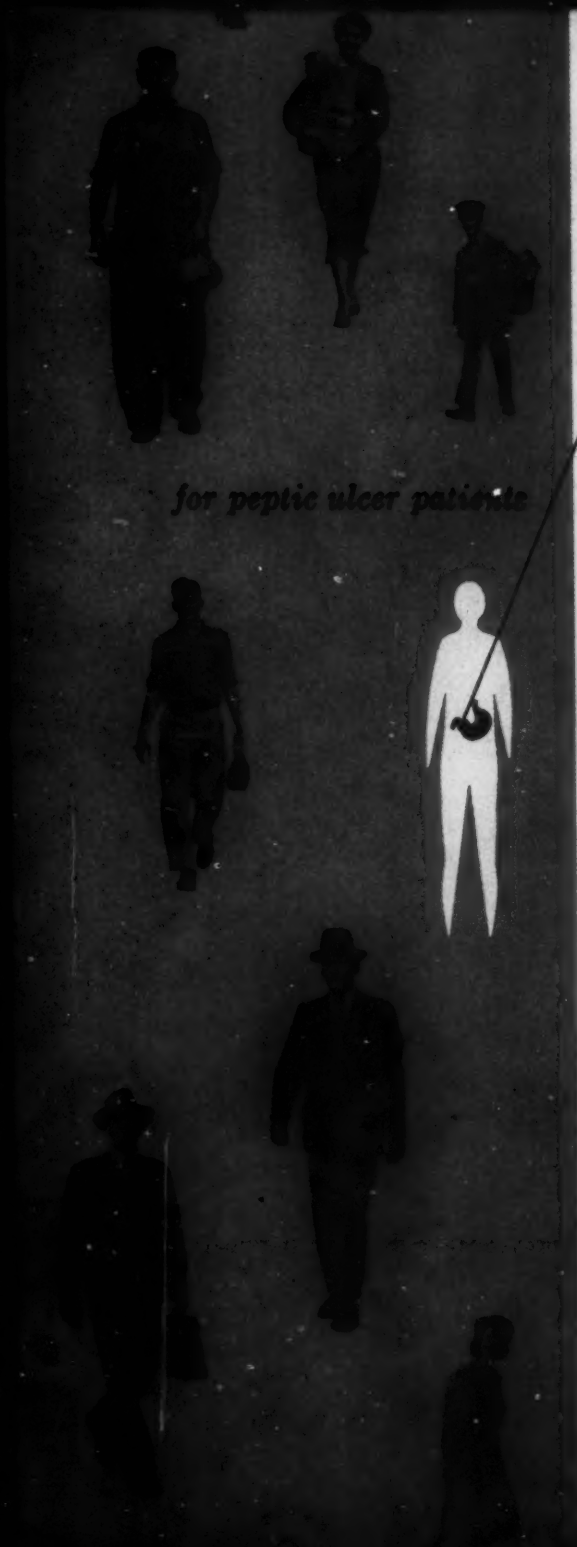
The Student and the Matching Program 1958 (NIMP publication).

Medical College Admission Test—Bulletin of Information 1957 (Educational Testing Service publication).

Psychiatry in Medical Education—1951 Conference ($1.00).

The Psychiatrist: His Teaching and Development—1952 Conference ($2.50).

(The above can be obtained from: American Psychiatric Assn., 1785 Massachusetts Avenue, NW, Washington, D.C.).



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